

SEC20

60 Harv. Int'l L.J. 267

Harvard International Law Journal

Summer, 2019

Article

Dirk A. Zetsche^{a1} Ross P. Buckley^{aa1} Douglas W. Arner^{aaa1} Linus Föhr^{aaaa1}

Copyright © 2019 by the President and Fellows of Harvard College; Dirk A. Zetsche, Ross P. Buckley, Douglas W. Arner, Linus Föhr

THE ICO GOLD RUSH: IT'S A SCAM, IT'S A BUBBLE, IT'S A SUPER CHALLENGE FOR REGULATORS

Initial coin offerings (“ICOs”) typically use blockchain technology to offer tokens that confer various rights in return, most often, for cryptocurrency. They can be seen as a conjunction of crowdfunding and blockchain. Based on a database of over 1000 ICO “whitepapers,” we provide a taxonomy of ICOs to increase understanding of their many forms, analyze the various regulatory challenges they pose, and suggest the steps regulators should consider in response. As our database shows, ICOs emerged very rapidly as a global phenomenon and the global ICO market is much larger than generally thought, with overall ICO subscriptions estimated to exceed \$50 billion as of the year-end of 2018. The U.S. ICO market is significant, but the United States does not dominate this market by any means. This groundbreaking research demonstrates how many ICOs are offered on the basis of utterly inadequate disclosure of information—more than two thirds the ICO whitepapers are either silent on the issuing entity, initiators or backers, or they do not provide contact details. We also establish how an even greater share of ICOs do not elaborate on the applicable law, segregation or pooling of client funds, or the existence of an external auditor. Accordingly, the decision to invest in them often cannot be the outcome of a rational calculus. Hallmarks of a classic speculative bubble were certainly present across 2017 and 2018. Nonetheless, ICOs can also be seen as a response to the market failure of most financial systems to finance adequately the exceptionally innovative start-up enterprises. ICOs have the potential to provide a new, innovative, and potentially important vehicle for raising funds to support innovative ideas and ventures, and aspects of their underlying structure may well prove to have an important impact on fundraising systems and structures long into the future.

*268 INTRODUCTION

More than 5000 Initial Coin Offerings (“ICOs”) have raised significant funds since 2016.¹ Our data in this article suggest global contributions to ICOs have surpassed \$50 billion,² and that ICOs have become a truly global phenomenon. There was remarkable investor appetite in 2018 despite the collapse in the price of Bitcoin and other major cryptocurrencies, with more funds raised in the first eleven months of 2018 than in the previous four years combined.³ The first “mega ICO” took place in early 2018: Telegram raised over \$1.7 billion,⁴ with Block One unexpectedly raising \$4.1 billion for its EOS project in a year-long ICO that culminated in June 2018.⁵

Compared to their current profile, ICOs came from very humble roots: ICOs initially began as a mechanism among the blockchain community to attract financial support for new ideas and initially involved small amounts of money and small

numbers of investors. However, as amounts raised increased, so has interest in using ICO structures to raise money for ever broader purposes among ever broader groups of investors, with issuances in 2017 and 2018 forming a large portion of early stage fundraising globally.⁶

However, the history of the technique's evolution matters. In the early phases of the ICO phenomenon, investors in ICOs typically personally knew the technologists who were seeking funding to develop their software ideas and to bring them to the market. For this reason, information about the promoters and technologists behind the entity raising the funds and financial information about the entity were often totally absent. This paucity of information became something of a market norm. While it made some sense when everyone knew each other--for example in the cases of a range of ^{*269} privately ordered club markets, with 19th century London as the most familiar example--that this has persisted as the market has grown makes no economic sense at all, except as an example of path dependence. The market has now expanded globally through technologically underpinned network effects--particularly through social media and other forms of Internet communication--to a market where essentially no one knows anyone else--similar to the evolutionary context of the U.S. securities markets as opposed to the example of the club structure prevalent in the U.K. in the 19th century.

In addition, while early structures mostly sought to avoid legal and regulatory considerations, viewing these as addressed through the technology involved as well as pre-existing relationships, as the market has expanded, there has been an increasing involvement of major legal and advisory firms in the area, including--in some cases--banks and other traditional financial institutions involved in traditional capital raising and asset management.⁷

Prominent examples demonstrate very significant issues: some ICOs have been unmasked as scams and Ponzi schemes,⁸ while others, including one of ^{*270} the larger to date,⁹ have brought governance concerns to the fore and caught the attention of financial regulators. There has been a wide range of regulatory responses: from an outright ban or statement of disapproval of ICOs in China¹⁰ and South Korea¹¹ respectively, to warning notices by European,¹² U.S.,¹³ and other regulators¹⁴ -- reinforced by statements that securities laws ^{*271} are potentially applicable and registration is necessary¹⁵ -- to more supportive approaches in other jurisdictions,¹⁶ with Switzerland,¹⁷ and to a lesser extent Singapore,¹⁸ leading the way, having recognized the applicability of securities regulations to utility and asset tokens.

This article draws on a rapidly growing, hand-assembled database of documentation for over 1000 ICOs, hereinafter called the Whitepaper Database since the documents made available during the launch of an ICO are usually called "whitepapers."¹⁹ These whitepapers were gathered from thirty websites functioning as ICO repositories.²⁰ While we do analyze characteristics ^{*272} of the ICOs in the Whitepaper Database throughout this Article, the proportions we give should not be taken as being anything more than broadly indicative, as the total universe of ICOs now numbers over 5000. Our sample, however, comprises one of the largest datasets considered to date, particularly of whitepapers. Our latest results are therefore significant as they are based on about 20% of the total ICOs issued to date. To our knowledge, this database, and in particular its focus on legal disclosures, is unique in that it provides a much-needed insight into disclosure quality in the context of ICOs and underpins our analysis of policy considerations below.

To further verify the core messages from our analysis of our Whitepaper Database, our analysis is supplemented by three webscraped datasets taken from websites TrackICO (trackico.io), ICORating (icorating.com) and ICObench (icobench.com), comprising data on 4170, 5223, and 5320 ICOs respectively as of February 15, 2019. The data disclosed on those three websites focus, for the most part, on rough ICO metrics such as country of origin and capital raised. For this reason, we treat these webscraped databases as supplementary to the Whitepaper Database in our analysis.

From this dataset, in Part II we describe how ICOs are set up, provide a basic taxonomy of ICOs, and analyze which legal frameworks might apply to which types of ICOs. In Parts III and IV we highlight some key risks for the financial system and for ICO participants. In Part V we consider possible responses of regulators and supervisors. Part VI concludes.

I. A TAXONOMY OF INITIAL COIN OFFERINGS

A. Common Characteristics

ICOs take so many different forms that the task of definition is no simple matter. However, the structure, following its name, is based on the offer of ^{*273} digital tokens or coins utilizing blockchain technology.²¹ As with the tokens that represent cryptocurrencies,²² such as Bitcoin²³ and Ether,²⁴ in an ICO the initiators establish a blockchain and grant tokens (also known as ^{*274} “coins”) to its participants.²⁵ To date, most ICOs have been Internet-based and open to the public, though with varying levels of selection in terms of potential participants and their amounts of investment.

The idea and/or inchoate technology in an ICO can come from any industry or service sector. Figure 1 shows the economic sectors for ICO whitepapers in the Whitepaper Database.

FIGURE 1: ICOS BY INDUSTRY (WHITEPAPER DATABASE)²⁶

TABULAR OR GRAPHIC MATERIAL SET FORTH AT THIS POINT IS NOT DISPLAYABLE

In most cases the ICO occurs early in the business or project.²⁷ However, while the “initial” in ICO implies a first offer of tokens or coins, the offer is often the second or third offer of the tokens for subscription, and merely the first to the public. Some 52.11% of the tokens in our Whitepaper Database reveal they have been offered in a presale to a private investor group prior to the ICO (4.70% did not provide any information on the matter, 43.18% stated that the offering was in fact initial). The actual number of pre-offerings will be higher given the poor quality and content of documentation and the current absence of standards and enforcement.²⁸ The results of our Whitepaper Database are confirmed by our webscraped information which show presale arrangements in about 50.79% (TrackICO), 44.47% (ICORating), and 36.17% (ICObench) of cases. The large number of presales without adequate disclosure or safeguards such as lock-up periods gives rise to concerns ^{*275} since it facilitates ‘pump-and-dump schemes’ in offerings, leading to a range of consumer protection and other risks, which may or may not fall within the scope of existing law.²⁹

This impression is further supported by ICO distribution strategies in which celebrities have been involved. High-profile examples include Paris Hilton (LydianCoin), “Ghostface Killah” from the Wu Tang Clan (Cream Capital), Jamie Foxx (Cobinhood) and Floyd Mayweather Jr. (Stox).³⁰ The United States Securities and Exchange Commission (“SEC”) has warned investors of celebrity advertisement as it may be part of paid promotions and does not replace conducting research on the intended investment.³¹

B. Token or Coin Characteristics

The tokens often called “coins,” typically exhibit the characteristics of a digital voucher and grant the participants a right of some kind, which can take a range of forms and functions. The particular right represented by a token varies. A token may represent a license to use a software program (usage token), a membership in a community (community token) or an entitlement to a financial asset. There are two broad categories of financial tokens: currency tokens and equity tokens. Currency tokens are characterized by a token reflecting a right in another currency, whether crypto or otherwise.³² Equity tokens represent the right to a share in a cash flow generated by some underlying asset.³³ Among the equity tokens, some ICOs confer participation of token holders in an asset pool in a non-segregated manner, while in other cases the token allows participation in one single asset, separable from other assets. Figure 2 shows our taxonomy based on what the token represents.

***276 FIGURE 2: ICO TAXONOMY BY TOKEN REFERENCE**

TABULAR OR GRAPHIC MATERIAL SET FORTH AT THIS POINT IS NOT DISPLAYABLE

Effectively, ICOs to date have paralleled the universe of crowdfunding techniques, from donation or charity-based structures to rewards to equity and debt,³⁴ but with the token providing the evidence or rights granted in the process.

Figure 2 introduces, besides consideration,³⁵ the distinction between currency, equity, and utility tokens. Currency tokens are characterized by the fact that one token is meant to take the form of a new cryptocurrency or to reflect a right in another currency, either crypto or otherwise. For instance, 1 token could reflect the value of \$1, C=1 or 1 ETH. The ICO merely translates a currency into bits and bytes if it is not already in that form, and if it is already digital, as in the case of a cryptocurrency, the ICO merely provides a different wrapper for it. An equity token represents the right to a share in a cash-flow other than a currency that is to be generated by an underlying business or investment; and in some cases the whitepaper “grants” voting rights or other means to influence the project development in the future. Finally, a utility token provides any type of utility not fitting in the two former categories.

While ICOs are often characterized as “utility” or “currency” tokens by their promoters, the reality of the particular transaction must be looked at carefully to deduce their nature, with tokens ranging from funding of early stage research (similar to charitable crowdfunding via GoFundMe and the like), to pre-purchase of specific products, often blockchain based (similar to *277 rewards crowdfunding via Kickstarter), to investment structures of various forms (similar to equity or debt crowdfunding).

FIGURE 3: ICOS BY REFERENCE VALUE (ICORATING & ICOBENCH DATABASE V. WHITEPAPER DATABASE)³⁶

TABULAR OR GRAPHIC MATERIAL SET FORTH AT THIS POINT IS NOT DISPLAYABLE

Figure 3 shows the distribution of ICOs from different sources. The data from the ICORating and ICObench Databases show a large number of ICOs (66% and 96% respectively) being self-categorized as utility tokens. These figures have to be interpreted in light of the considerable regulatory advantages, to an issuer, of characterizing their offering as a utility token.

In contrast, the Whitepaper Database reflects a random sample of hand-collected ICOs of which we have determined the classification. There is significant divergence between the webscraped and the hand-selected data. This classification resulted in 45% of tokens being utility tokens, while currency tokens (34%) and equity tokens (13%) played a significantly more important role than in the webscraped data. While there may be some technical reasons for that divergence,³⁷ we note that reward-based structures, *278 which would include ICOs that are functionally utility tokens as opposed to simply self-defined as such, raise by far the least concern from a financial regulation perspective,³⁸ and therefore the promoters have a strong incentive to self-classify their tokens as utility tokens regardless of the functional reality. There is also a dramatic variation in currency tokens, from those that create essentially improved versions of Bitcoin to those that underlie entire ecosystems, such as the original Ethereum proposal with Ether at its heart.

C. Issuing Entities and Backers

In addition to a website and often a YouTube video, ICOs typically involve documentation called a “whitepaper.” A “whitepaper” is defined on Wikipedia as:

an authoritative report or guide that informs readers concisely about a complex issue and presents the issuing body's philosophy on the matter. It is meant to help readers understand an issue, solve a problem, or make a decision.³⁹

The U.K. and Australian governments, as well as the Hong Kong Monetary Authority (“HKMA”) and many other governments and government related organizations often issue whitepapers on issues, and the Wikipedia definition captures the purpose of such documents very well. The whitepapers that typically accompany an ICO are different beasts altogether, and usually bear no relation at all to the sort of prospectuses that typically accompany an offering of securities. Rather, ICO whitepapers tend to be a simple description of the project and the structure in which tokens will be used to support it. The origins of ICO whitepapers can be traced back to the 2009 whitepaper for Bitcoin published under the name of Satoshi Nakamoto,⁴⁰ in which the technical features of Bitcoin were outlined but almost nothing else.

Whitepapers for ICOs typically reveal very little about the issuing entities and their backers. These whitepapers often fail to give a physical, postal, or other contact address. In 21.69% of the whitepapers in the Whitepaper Database, the ICO documentation failed to convey any information at all about the issuing entity. Only 32.82% of the whitepapers mentioned the issuing entity, the country of origin, and provided an address. That means, in total, of all ICOs in the Whitepaper Database, more than 67% of issuers did not disclose usable contact details, leading to obvious consequences for *279 consumers seeking either further information or redress.⁴¹ Moreover, in 31% of the cases the whitepapers do not provide any information at all about the initiators or backers.

D. Consideration

While the ICOs in our database have only been issued in return for consideration, consideration is not a prerequisite for ICOs. Token issuances can be for the sole purpose of gathering a group of participants interested in blockchain technology for later use, for instance for social media or marketing purposes. Given we are particularly interested in the financial law dimensions of ICOs, however, we focus in this article on ICOs for consideration. Importantly, a number of ICOs define the contribution being sought in terms of “donation,” as true donations of funds to an ICO would raise even fewer potential legal and regulatory concerns than true rewards-based structures. Once again, this suggests the need for a careful functional analysis in each case.

The consideration can be any type of valuable asset. For the purpose of our analysis, we take consideration to include cases in which the whitepaper defines the payment as a donation, if the functional nature of the ICO is in fact not charitable in nature. This approach ensures each ICO considered is categorized according to its function in reality, and not necessarily according to the terms of its whitepaper. In many cases, ICOs are issued for cryptocurrency, for instance, consideration paid in Ether. While this suggests tech savviness and seems to appeal to the expected participant constituency, the value of consideration in this case depends on the market value of the cryptocurrencies which often fluctuate significantly on a daily basis. We have also seen a number of ICOs where the consideration is to be paid in cash, typically U.S. Dollars. The total issue amount available for subscription in currency value (hereafter “ICO funding target”) has varied from the equivalent of a few thousand U.S. Dollars⁴² to well over 1 billion U.S. Dollars.⁴³

As indicative of the size of ICOs, we use the maximum amount announced as the targeted fund raising (“hard cap”).

***280 FIGURE 4: DISTRIBUTION OF ICOS BY FUNDING TARGET IN U.S. DOLLARS SET BY ICO ISSUER (WHITEPAPER DATABASE)⁴⁴**

TABULAR OR GRAPHIC MATERIAL SET FORTH AT THIS POINT IS NOT DISPLAYABLE

Figure 4 shows the distribution of ICO hard caps in the Whitepaper Database. Seventy percent of the ICOs where the hard cap was disclosed in the whitepaper aimed to collect between \$10-100 million. A sizable proportion, at 20%, sought between \$1-10 million, with ICOs seeking either very small or very large amounts being relatively uncommon. While actual subscriptions may be much lower,⁴⁵ our data show that ICOs aimed to collect serious money, and did so frequently and successfully.

The most astonishing number, however, is that only 41% of the whitepapers in our Whitepaper Database state a hard cap (i.e., a maximum amount the promoters are willing to collect). An additional 4%, while being silent on a hard cap, at least provided a soft cap (i.e., a minimal amount required for the project).⁴⁶ In turn, 55% of the whitepapers remain silent on either the minimum or maximum amount of money they are seeking. While that number seems to be on the low end when compared to our other three databases that consider website disclosures in addition to whitepaper disclosures,⁴⁷ it is safe to assume that a significant portion of whitepapers do not provide *any* information on the amount the ICO promoters seek to gather from ICO participants.⁴⁸

E. A Proper ICO Structure

In a well-developed ICO structure--and as we highlighted above, many, if not most, to date have not been well-developed, nor actively utilize legal and/or consulting advice--a team of technology entrepreneurs transfers, by *281 way of sale or licensing, an idea into an ICO vehicle. The vehicle is most often a limited company, although in Anglo-American countries it can be a trust and in civil law countries a foundation. One could call this a "proper" ICO structure, designed in a formal manner to comply with major legal requirements. From a legal perspective, the ICO vehicle makes certain promises the terms of which vary from ICO to ICO. The promises can, for instance, range from an exclusive right to use a certain IT service under development, to the right to participate in a community or to vote upon the future development of the software design underlying the token, or to participate in the future cash-flow generated by the ICO vehicle. The terms of the promises state that holders of "tokens"⁴⁹ will be able to request from the ICO vehicle fulfillment of the promise, i.e. the token holders enter into a legal relationship of some type with the ICO vehicle.⁵⁰

In such a structure, a number of service providers will typically be involved. These service providers, for instance, may (1) establish the ICO vehicle based on legal and tax considerations, (2) prepare the documents, (3) sometimes function as the vehicle's directors or trustees respectively, and (4) support the token issuance by promoting the ICO on the important ICO websites, stimulating discussion in the ICO community, and at times distributing tokens through digital advertising means.

FIGURE 5: "PROPER" ICO STRUCTURE

TABULAR OR GRAPHIC MATERIAL SET FORTH AT THIS POINT IS NOT DISPLAYABLE

F. Interaction with Venture Capital

While the traditional financial sector has been reluctant to invest in ICOs, we see some alternative investment funds focusing on ICOs to provide to a wider range of investors exposure to the high levels of profits which *282 have been available. However, the role venture capitalists are to play in this area is still unclear. Traditionally, venture capitalists offer investors access to shares in new companies which are not yet being publicly traded. ICOs have the potential to be more accessible to the public in their somewhat more democratic nature, and entrepreneurial companies are moving towards raising funds using them.⁵¹

While the ICO environment is new and many investors and venture capital firms remain skeptical, there are indications that mimicking some aspects of the traditional venture deal structure is possible with ICOs. Matt Huang of U.S. venture capital firm Sequoia Capital, for example, has told Bloomberg the firm prefers tokens to be distributed over time, as with equity deal vesting periods. In his words, "[j]ust because it's novel doesn't mean we have to reinvent everything from scratch."⁵² Even if ICOs are not able to replicate all services offered by venture capital firms, for example advice and other assistance,⁵³ they have the potential to replace at least the existing early stage funding mechanisms for startups. Some analysts have already suggested that funding raised by startups through ICOs has surpassed early stage venture capital funding.⁵⁴

Furthermore, venture capitalists are becoming increasingly active at the pre-ICO stage as well as in ICOs. Investors can now become involved by buying *rights* to acquire tokens through newly developed contractual agreements, for example Simple Agreements for Future Tokens (“SAFTs”), or by entering into equity deals “guaranteeing investors ... tokens if the startup ever decides to hold an ICO in the future.”⁵⁵ This is a role quite different from simply purchasing a stake in a startup, and potentially waiting a number of years for a return.

In 2017, startups raised over \$3.6 billion through ICOs,⁵⁶ while \$52.6 billion was raised overall from venture capitalists.⁵⁷ This gap is likely deceptively large. At this early stage, figures in isolation carry little meaning, and what matters more is the rate at which these numbers are increasing.⁵⁸ Similarly, *283 it has been reported that 110 crypto hedge funds have been active in the ICO/cryptocurrency markets since 2011, with 84 of them established in 2017, managing assets of \$2.2 billion; the first crypto fund-of-funds was established in October 2017.⁵⁹ While the involvement of professional investors could promote market maturity, it also strengthens the link to the established banking sector and thus enhances systemic risk.

G. Legal Information and Applicable Law

Given that ICOs are not subject to specific regulatory requirements in most jurisdictions and are frequently structured to avoid existing legal and regulatory requirements, or ICO issuers simply ignore such issues, the content of whitepapers is often inconsistent. The only consistent factor tends to be a technical description of the underlying technology for which funding is sought, as well as some description of the potential uses and benefits of said technology.

In cases where legal and regulatory aspects have not simply just been ignored--which as our data suggest, constitutes a sizable portion⁶⁰-- the majority of larger ICOs to date have relied on legislative loopholes or, more accurately, what the issuing entity hopes, or prays, is a loophole or grey area. Only 35% of the ICOs in the Whitepaper Database mention the law applicable to the ICO. In 21% of the cases the whitepaper excluded investors from certain countries from participation.⁶¹ In 81% of the cases there is no information at all as to the regulatory classification of the ICO.

This cavalier disregard of the need to inform a participant as to where precisely their funds are going, and what rights are being given in return for these funds, only makes sense when one appreciates the particular mindset of many issuers of ICOs: a mindset facilitated by (optimistically) the innocence of the stereotypical crypto-geek about legal or other requirements or (less optimistically) the greed of participants who are literally prepared to give money to entities on the basis of such extraordinarily scant information purely in the hope of massive, short-term speculative gains. This mindset is perhaps best described as anarcho-capitalism. It is the idea that the world would work really well without government or regulation. As financial contributions to an ICO can be made in cryptocurrency and benefits returned to *284 participants in the same or other digital ways, many issuers of ICOs seem to believe that these instruments exist beyond the jurisdiction of national laws and courts.⁶² We do not accept this belief--courts are loath to cede jurisdiction-- and we have analyzed and dismissed it in the context of blockchain and other distributed ledger systems in previous work.⁶³ Yet whether this belief is genuinely held or merely opportunistic, what matters is that issuers are acting upon it, and participants are going along for the ride, at least until major losses are incurred.

H. Geographical Breakdown

ICOs are a worldwide phenomenon. Drawing on references in ICObench, the database with most regional data to date, Figure 6 shows the regional distribution of ICOs across major markets. Given that we assume that the ICOs or their service providers have contacted the website prior to listing, it is surprising to see that in over 5% of cases the origin of the ICO was unspecified. We would expect that the issuer's country of origin is for any investor a crucial fact.

FIGURE 6: ICO VEHICLES' COUNTRY OF ORIGIN (ICOBENCH DATABASE, IN %) ⁶⁴

TABULAR OR GRAPHIC MATERIAL SET FORTH AT THIS POINT IS NOT DISPLAYABLE

*285 Further, drawing only on the ICO vehicle's own disclosures in our Whitepaper Database, we could not identify the issuing entity's country of origin in 51% and the promoter's origin in roughly 57% of the whitepapers.

This data demonstrates that ICOs are a global phenomenon, and in this regard the ICObench Database, the TrackICO Database, and our Whitepaper Database largely correspond. ⁶⁵ If these numbers do accurately reflect the global ICO distribution, ⁶⁶ one thing stands out. Given the size of the U.S. economy and its capital markets, the number for it is remarkably low. While we will go into details later, this could be due to the strict enforcement, especially by the SEC, of U.S. financial laws.

The geographical distribution of the Whitepaper Database becomes more informative when one looks at the top ten ICO jurisdictions in our dataset, first by ICO numbers and second by ICO volume (capital raised). The list of the top ten jurisdictions confirms the view that ICOs do not originate geographically from places in proportion to the size of their capital markets or economies.

FIGURE 7: TOP TEN ICO JURISDICTIONS BY NUMBER (ICOBENCH DATABASE) ⁶⁷

TABULAR OR GRAPHIC MATERIAL SET FORTH AT THIS POINT IS NOT DISPLAYABLE

*286 In terms of number of ICOs, we find only some of the key financial market jurisdictions. Most ICOs were originating in the United States, ahead of Singapore, and while the U.K., Russia, Estonia, and Switzerland are significant, so are Hong Kong, the Cayman Islands, Germany, and Australia.

Figure 8 presents the ten most important jurisdictions by capital raised, sourcing the ICObench Database, by location of the ICO vehicle.

FIGURE 8: TOP TEN ICO JURISDICTIONS BY CAPITAL RAISED (ICOBENCH DATABASE) ⁶⁸

TABULAR OR GRAPHIC MATERIAL SET FORTH AT THIS POINT IS NOT DISPLAYABLE

With regard to Figure 8, we corrected the ICObench data in one important aspect: ICObench lists the giant \$4 billion EOS ICO as a U.S. ICO, although the issuing entity is established in the Cayman Islands. Our data suggests a degree of ICO market concentration in certain jurisdictions. Further, while the concentration is noticeable, it is not excessively high, with approximately 2000 of over 5000 ICOs launched from outside the top ten jurisdictions.

While it is too early to draw any firm conclusions, the disproportionate distribution of ICOs among a small number of jurisdictions could be interpreted as evidence of an uneven legal playing field, or regulatory arbitrage. ⁶⁹ To the same extent, however, it could be evidence of some locations' professional ecosystems nurturing ICOs, in the same way that initial public offerings ("IPOs") often cluster around a small number of jurisdictions. Given that the offering of financial products tends to be subject to registration or *287 licensing requirements around the world, we focus on the legal environment in which ICOs are sold in the next sections.

II. ICO RISKS AND POLICY CONSIDERATIONS

Clearly, based on the analysis in the preceding sections, ICOs raise a range of issues. In this section, we consider a number of the most significant issues, including information asymmetries, irrational behavior, lack of legal recourse, and potential systemic risks.

A. Information Asymmetry

The informational situation with most ICOs is uncertain at best. In over 20% of those in the Whitepaper Database, the whitepapers provide merely technical information about the product or process to be developed. In almost 25% of cases the whitepapers do not offer any description of the project's financial circumstances about how and when the capital collected is to be used. In over 96% of cases the whitepaper is silent on whether the funding to be provided by participants will be pooled or remain segregated. We speculate that pooling is widespread, given the lack of the sophisticated governance structures necessary for asset segregation. Shockingly from the standpoint of investment decision-making, information on how the initiators plan to further develop the technology that is to be funded is also usually lacking. The information asymmetry persists after the ICO: we could find information on actual subscriptions (how much money participants invested in the project) in only 55% of cases in the Whitepaper Database.

In most ICOs in the Whitepaper Database, potential participants are given so little financial information that their decision to fund the ICO cannot be based on a rational calculus. In fact, in roughly 40% of the whitepapers we did not find any financial information, indicating a lack of financial planning and/or financial solidity. This is not always the case: some ICOs are professionally documented by lawyers and other advisors clearly schooled in the customs of the securities markets. However, in most cases, the information provided is utterly inadequate, and typically consists of a description of technology that the initiator wishes to develop and often little else--and even this is not verified in any way. In no cases in the Whitepaper Database did an external auditor certify the "facts" presented in the whitepaper.

This is all remarkably different from IPOs. In our view, the only similarity between IPOs and ICOs is the similarity between the acronyms for each, which could in fact help to mislead investors.

**288 B. Capital Misallocation*

For quite some time, until at least November 2018, it seems that ICO initiators have been relying on the sort of classic market frenzy that typifies a bubble.⁷⁰ While not all ICOs meet their funding targets, oversubscription is particularly common among the larger, more prominent ICOs.⁷¹ Another indicator of investor sentiment is the estimate that less than 10% of the tokens acquired by investors can be put to use; the rest are merely available for trading, indicating purely speculative instruments.⁷²

But even where trading is expected, it is far from certain that ICO participants will be able to trade their tokens. Transfer issues related to tokens can cause difficult legal issues in the jurisdictions where the tokens were created; issues that are for the most part totally overlooked by investors. For instance, in Switzerland, one of the leading crypto jurisdictions, the transfer usually requires an assignment in written form. The digital alternative, a signature by way of a digital signature, is too complicated and cumbersome in practice, as most ICO participants around the world lack a digital signature as required by Swiss law.⁷³ Prior to transfer, new solutions to these challenges must be "invented" and occasion delay and legal uncertainty.

This observable overexcitement is a well-known indicator of the sort of irrational market behavior seen many times before.⁷⁴ These bubble characteristics will not only harm individuals who lose money, but also lead to a misallocation of capital and in fact potentially jeopardize the benefits of using blockchain based crowdfunding mechanisms more generally--and even blockchain itself more generally. Rather than channeling money to the most productive use, as markets should do, there are many signs that many ICOs *289 have channeled money to recipients for their own personal use, in a range of frauds and scams.⁷⁵

C. Weak Legal Protections

In only 34.84% of our cases do the whitepapers contain any information on the applicable law. In 57.68% of cases the whitepapers do not provide the name of the initiator nor any background information on them, such as the address. While

roughly 20% of the whitepapers collected in the Whitepaper Database give a name as author of the whitepaper, cases where the author's name is identical with the issuer or an officer of the issuer or where the author's function in the issuer's organization is described are extraordinarily rare--less than a dozen in the Database. Without the basic information as to who stands behind the ICO, private law liability as a correcting factor is severely limited. This is regardless of the law which applies: any legal action must rest on knowledge of who has collected the consideration. If the parties to a transaction cannot be established with certainty, the law's arms are tied.

D. Systemic Risk

With an estimated market capitalization varying from several billion to several hundred billion U.S. Dollars depending on the date of calculation, the ICO market may seem to be too small to justify regulatory action based on systemic risk concerns.

Nonetheless, given that cryptocurrency volume is certainly in the hundreds of billions (the overall market volume of cryptocurrencies is estimated to be in the \$200 billion range)⁷⁶ and ICOs are a growing component of this, there is a clear issue of potential concern, as the number of individual investors have grown rapidly and, at the time of writing, there are not many signs of high levels of enthusiasm abating, although the number of ICO issuances declined in the second half of 2018.

***290 FIGURE 9: ICOS BY NUMBERS PER MONTH (ALL 3 WEBSCRAPED DATABASES)⁷⁷**

TABULAR OR GRAPHIC MATERIAL SET FORTH AT THIS POINT IS NOT DISPLAYABLE

Further, in our small sample contained in the Whitepaper Database, in the 644 (of 1042) ICOs in which we have been able to calculate the consideration collected, the average value collected is \$26.60 million based on ETH and BTC market values at the first day of offering.⁷⁸ In those 644 ICOs alone, participants have “invested” more than \$17.1 billion. Note that our sample does include some of the prominent and larger ICOs including Eos and Telegram; so those very large ICOs influence the total strongly.⁷⁹

Given that the ICObench Database lists 5320 ICOs worldwide through Feb. 15, 2019, based on these numbers we would “estimate” (or, more accurately, guess) an overall ICO capital raised (total consideration collected) that is much higher than previously estimated, at something approaching \$140 billion today. If we take the total capital raised according to the data in the ICObench Database--\$24.45 billion collected by 1564 ICOs for which we have complete observations, giving an average of \$15.63 million--we still come to a staggering total amount raised of some \$80 billion. *291⁸⁰ However, we cannot disregard the fact that we lack data on raised capital in a third of ICOs in the Whitepaper Database and some 71% of the ICObench Database. The fact that we lack data on so many ICOs may be due to the ICO's total failure with no money being collected at all, or due to non-disclosure. The former is definitely true for some and the latter for others. We take the utterly arbitrary, though cautious, approach and assume that half of the ICOs for which data is missing were total failures and that the rest reached the lower average amount raised based on the ICORating Database, coming to a total amount invested in ICOs of roughly \$50-55 billion.

Further, even if an estimate only equal to the confirmed capital raised in the ICObench Database is correct (\$24.45 billion), the growth would be remarkable. Figure 10 shows the monthly capital raised by ICOs through end of December 2018.

FIGURE 10: ICO CAPITAL RAISED BY MONTH (ALL THREE DATABASES, JAN. 2017-JAN. 2019)⁸¹

TABULAR OR GRAPHIC MATERIAL SET FORTH AT THIS POINT IS NOT DISPLAYABLE

The picture we see in the capital raised is confirmed in our numbers on ICOs issued per month, as shown in Figure 10.

The numbers lead us to believe that the bubble peaked in the period between October 2017 and June 2018, with significant enthusiasm still present *292 through August 2018. During that period the risk of overpriced ICOs was enormous.

These numbers underline how fast FinTech markets can develop. Other FinTech examples demonstrate how fast a business can move from being too-small-to-care, to too-big-to-ignore, to too-big-to-fail.⁸² For instance, the Bitcoin bubble built up much faster than any other previous case (Figure 11)--and came to a hard landing in early November, 2018 with Bitcoin prices falling below \$3000 (prior to rising again above \$10,000 as of Sept. 2019).

FIGURE 11: MAJOR BUBBLES SINCE 1990 VS. BITCOIN: PERCENTAGE CHANGE⁸³

TABULAR OR GRAPHIC MATERIAL SET FORTH AT THIS POINT IS NOT DISPLAYABLE

Money market funds offer an interesting contrast that demonstrates the rapid growth potential of FinTech businesses. Three of the largest players in this sector (Vanguard,⁸⁴ Fidelity,⁸⁵ and Schwab⁸⁶) were established in 1975, 1946, and 1971 respectively. Yet, in 2014, Alibaba's parent company Ant Financial started to offer a new, fully online fund to its existing customer *293 base.⁸⁷ Within nine months, Yu'E Bao was the world's fourth largest money market mutual fund in the world (\$90 billion), on par with these old established players,⁸⁸ and today is the world's largest money market fund.⁸⁹

Given the potential risks raised, we turn to a consideration of the existing legal frameworks potentially operative in the context of ICOs and whether they are sufficient to address the increasing range of risks arising.

III. APPROPRIATENESS OF EXISTING LEGAL FRAMEWORKS

Given the variety of ICOs, a one-size-fits-all legal analysis of ICOs is simply impossible. Any legal assessment must consider the particularities of the individual offerings. We begin by considering the forms of potentially legally relevant conduct, then analyze the potential usefulness of the traditional private law framework, particularly contract law. From this we consider general frameworks of consumer protection, as these potentially apply across all forms of ICO, then turn to specific frameworks that may also apply in the context of financial law and regulation, including those applicable to crowdfunding.

A. Legally Relevant Conduct

While some ICOs take the form of donations (and thus look similar to charitable crowdfunding), most ICOs promise some direct benefit in return for consideration. However, often the benefit is not of a financial nature. In some cases the token can be used similarly to a license or a gift card (and thus look similar to rewards-based crowdfunding), and it can grant any set of rights the initiator chooses to offer.

Depending on how the promise is expressed, the structure of the ICO, and governing jurisdiction, a contract or partnership, or possibly even a trust relationship, may arise.⁹⁰ The important point is that issuing the commitment to the public and accepting the consideration on this basis is legally relevant conduct. The people who make those promises are bound by their commitments; breach will result in liability. This may seem like stating the obvious, but we do so because a significant part of the tech community appears to believe that blockchain-based conduct falls outside the scope of the law--a proposition we have argued against elsewhere.⁹¹

*294 *B. General Consumer Protection Legislation*

Once qualified as legally relevant action, in most jurisdictions contracts with the public come along with specific legislation to ensure protection of consumers. For instance, in the United States, the Federal Trade Commission ("FTC") is tasked with

preventing “unfair or deceptive acts or practices in or affecting commerce,” alongside administering a number of more specific consumer protection laws.⁹² Such unfair or deceptive acts extend to acts of foreign commerce which cause or are likely to cause reasonably foreseeable injury in the United States.⁹³ The FTC is empowered to commence proceedings against persons or corporations who engage in unfair or deceptive conduct, and potential remedies include restitution for victims.⁹⁴ In Germany, if no more specific legislation applies, German legislation confers private law prospectus liability as a special case of *culpa in contrahendo*,⁹⁵ while French law subjects any intermediary in goods to rules of promotional communication which come close to prospectus regulation and include a statement “by an independent expert with sound repute and experience that certifies the existence of the goods on which rights are proposed and advises on the liquidity of the rights acquired”;⁹⁶ further, statutory liability and intermediary regulation applies in this case.⁹⁷ In Australia, the Australian Securities and Investments Commission (“ASIC”) has announced that when the *Corporations Act 2001* (Cth) does not apply to an ICO, the offering will still be subject to Australian consumer laws⁹⁸ which include prohibitions against misleading and deceptive, and unconscionable, conduct towards investors.⁹⁹ Australian ICOs are likewise governed by general laws against fraud.¹⁰⁰ Similar consumer safeguards exist across the EU and EEA due to European harmonized consumer protection legislation.¹⁰¹ For instance, in *295 the U.K. the *Consumer Rights Act of 2015*, the *Consumer Protection Act of 1987*, and the *Misrepresentation Act of 1967* are all likely to apply.¹⁰² The same is true for the equivalent consumer protection laws in the rest of Europe. In the United States a wide range of laws impact on different aspects both within and without the financial context.

Further, if ICO participants are consumers, private international law will limit the discretion with which ICO initiators and backers can determine the applicable law. Under most private international law regimes, contracts between commercial entities and consumers are subject to the consumer protection laws in force in the consumer's jurisdiction of residence, or at least the rights granted in that jurisdiction are upheld.¹⁰³ For this reason, consumer law may be well suited to regulate ICOs, although the challenge for regulators is twofold in this regard: (i) it is very difficult for a regulator to even know which consumers in its jurisdiction are investing online using cryptocurrency in ICOs offered abroad, and (ii) if only a small number of local investors are investing in such ICOs, the required resources to regulate it may be disproportional to the local impact.

Some in civil law jurisdictions may argue that the acceptance of money in return for a promise is not a commercial activity; relying, again, on the fact that the ICO is being issued by a non-commercial entity such as an association, club, foundation, or trust. However, the fact a trust, foundation, or association is acting is no bar to it acting in trade or commerce. Any ongoing project with a profit expectation—either direct or indirect—will suffice to establish a commercial activity.

Thus, as a common denominator, since ICOs are in most cases offers to the public, i.e. consumers, by some commercial enterprise where consideration is required in order to participate, the general consumer protection legislation of the relevant jurisdiction will apply.

*296 In some cases, however, specific legislation could apply and displace the general consumer legislation. While this is not the case in all jurisdictions to the same extent, two fields of law are particularly noteworthy in displacing consumer legislation. First, if ICO participation results in a membership in a company or partnership, company or partnership law could apply in lieu of consumer protection law.¹⁰⁴ Whether this is the case depends on the private law qualification of the blockchain participation which we have explored elsewhere.¹⁰⁵ The second important instance of specialized legislation applicable is financial law, which we consider in the following sections.

C. Financial Law and Regulation

Financial law could assist *if it applies*. Based on our taxonomy, we argue that financial law could apply to most self-classified utility tokens and currency tokens (those that are not pure rewards structures) and most, if not all, equity tokens. From a functional perspective, financial law generally should not apply in cases of what are functionally pure donation or rewards

structures. While far from aiming at completeness,¹⁰⁶ this section simply demonstrates that depending on the structuring of the ICO, financial law *can* apply and where it can, it usually *will and should*.

Although the whitepapers in the Whitepaper Database are vague, some 34% of ICOs appear to meet our Currency Token test.¹⁰⁷ This however disguises a very wide range of different structures, ranging from mere Bitcoin replications to payment systems to cryptocurrency ecosystems to a range of investment structures. Across this spectrum, a range of different financial regulatory frameworks may come into play, depending on the functional nature of the currency token involved. Around the globe, regulators have implemented rules for payment services.

Some regulators have held that those rules could apply to cryptocurrencies and some have excluded such application. While we do not argue that each issue of currency tokens is subject to existing financial legislation, at least when an ICO seeking to establish a new cryptocurrency standard is structured “open-ended” either formally or de facto, so that the entity accepts fiat money in return for tokens or tokens in return for fiat money, legislation applicable to cryptocurrency exchanges will likely apply. This ***297** could be the legislation applicable to derivative exchanges in the United States¹⁰⁸ or payment services in Luxembourg and Japan.¹⁰⁹

Although most whitepapers again are vague, 13% of ICOs in the Whitepaper Database provide sufficient information to indicate an Equity Token¹¹⁰ has been issued.¹¹¹ Regulators around the world have started to treat those tokens as “securities.” The SEC has held regarding the DAO¹¹² that its ICO would meet the criteria of the *Howey* test¹¹³ and the DAO token therefore may well be a security. More recently, the SEC has been stating that ICOs which have the characteristics of securities will be treated as such and has been bringing related enforcement actions.¹¹⁴

An important development in this area in the United States relates to the ICO of the MUN token by restaurant review app Munchee. According to data compiled by CoinSchedule, its offering began on October 31, 2017, and ended in under two months on December 8, 2017 after the SEC ordered ***298** its closure.¹¹⁵ There were no allegations of misleading conduct under consumer protection law (a ground that could have been pursued);¹¹⁶ rather, the SEC relied upon Munchee having offered securities without complying with securities law, specifically, without filing a registration statement containing the required disclosure.¹¹⁷ This was despite the whitepaper issued by Munchee containing a lengthy legal disclaimer, including that “[t]his White Paper does not constitute the offering of a security.”¹¹⁸

Munchee's MUN token could be looked at in two ways. On the one hand, it could be seen as a “utility token” that could be used once the product came into existence, in a similar way to a pre-ordered product or typical rewards-based crowdfunding through Kickstarter. On the other hand, consumers were purchasing tokens to fund the creation of a product, and upon its success, those tokens could increase in value. To determine on which side of the coin--pun intended-- the MUN token fell, the SEC referred to a number of Facebook promotional posts by Munchee, promising customers would “most likely get a return” and could “watch[] their value increase over time.”¹¹⁹ The SEC's analysis gives some clarity to the distinction:

Even if MUN tokens had a practical use at the time of the offering, it would not preclude the token from being a security. Determining whether a transaction involves a security does not turn on labelling--such as characterizing an ICO as involving a “utility token”--but instead requires an assessment of “the economic realities” underlying a transaction.¹²⁰

To the authors' knowledge, this is the first instance of an ICO being halted for reasons other than fraud and misleading conduct in the United States.

This view has been shared by other regulators including Singapore and Hong Kong,¹²¹ and is gathering ground in Europe and an increasing range of other jurisdictions around the world.¹²² At the time of writing, discussions aimed at promoting consistency in approaches among regulators are pending at the International Organization of Securities Commission ***299** (“IOSCO”), the international securities regulators' association. Usually, if a token is a security, registration and prospectus requirements will apply to the issuer and ICO, ensuring a level of investor protection.

There still remains the question of how the United States and other courts will treat these fine distinctions, as Munchee did not dispute the SEC order. It is likely that such disputes will need to arise and be resolved before we achieve greater clarification in this area.

Further rules could also apply to the intermediaries involved in issuing, promoting, trading, clearing, and/or settling the tokens. Beyond these, most jurisdictions also have rules applying to securities exchanges and related infrastructure, such as clearing and settlement. As such, in addition to the tokens themselves, the exchanges and/or clearing and settlement facilities dealing with tokens are likely to be caught by related securities regulations addressing exchanges, clearing, and settlement. For that purpose, besides the definition of “securities,” it matters whether the investors' consideration is put in one bucket from which the right or entitlement granted to the token holder is purchased or whether the consideration remains separate from the rights of other token holders. However, virtually all whitepapers in the Whitepaper Database failed to address this issue. We suspect segregation is highly unusual given the sophistication and costs which segregation of client money requires.

If investor consideration is segregated, the legislation on individual portfolio management needs to be considered. Here, in addition to portfolio management obligations, additional criteria are often applied to limit the scope of financial supervision regarding discretionary portfolio management. For instance, under the U.S. Investment Advisers Act an investment adviser is any person who: (1) for compensation (2) is engaged in the business of providing advice, making recommendations, issuing reports, or furnishing analyses on securities, either directly or through publications.¹²³ The common lack of disclosure regarding the involvement, commissions, and fees of other entities in the ICO makes it difficult to assess who, besides the issuer as registrant for the purposes of securities regulation, is covered by U.S. investment law. The European Markets in Financial Instruments Directive (“MiFID”) framework regulates portfolio management only if it pertains to financial instruments. For instance, the European Securities & Markets Authority,¹²⁴ the German BaFin,¹²⁵ and the Finanzmarktaufsicht Liechtenstein ***300**¹²⁶ state that (equity) tokens can be financial instruments. For some regulators, doubts exist as to whether equity tokens are financial instruments, but this appears increasingly to be a minority view.

In some jurisdictions the situation is different once assets are pooled. In this case, rules on collective investment could apply. However, the definition and scope of collective investment rules vary across jurisdictions. For instance, under the U.S. Investment Company Act an entity must register as an investment company if the entity: (1) invests in securities, (2) issues membership interests that are securities, and (3) cannot rely on an exclusion from the definition of an investment company, including that the entity does not make, nor propose to make, a public offering of its securities, and must not have more than 100 members.¹²⁷ While most ICOs will meet the second and third criteria, only some ICOs will use the proceeds to invest in securities even under the broad definition of the *Howey* test.¹²⁸ Under the European Alternative Investment Management Framework, which to our knowledge applies the broadest scope of collective investment legislation, the central concept that determines the Alternative Investment Fund Managers Directive's (“AIFMD”) scope is the Alternative Investment Fund (“AIF”). The AIFMD uses the term “alternative” in a somewhat misleading way to include all collective investment undertakings that are not governed by the UCITS framework and “raise capital from a number of investors, with a view to investing it in accordance with a defined investment policy for the benefit of those investors.”¹²⁹ While equity token ICOs are likely to meet those criteria, the determination of whether there is discretionary third party fund management and a defined investment policy must be assessed on a case-by-case basis for which detailed knowledge of the handling of the ICO consideration and the structure of the issuer, sponsor, and other related parties is required. Unfortunately, very few whitepapers deliver those details. In light of this uncertainty it is encouraging and helpful that Australian regulator ASIC has announced that such equity

token arrangements with a discretionary management structure typically will be classified as Managed Investment Schemes and regulated under the Corporations Act.¹³⁰

***301** Furthermore, if the value of the coin that is offered depends upon the value of something else, the coin may fall within the definition of a derivative in some jurisdictions. In 2014, the U.S. Commodity Futures Trading Commission (“CFTC”) declared virtual currencies to be a “commodity” subject to oversight under the Commodity Exchange Act (“CEA”).¹³¹ Based on this clarification, the CFTC has taken various enforcement actions, for instance against unregistered Bitcoin futures exchanges¹³² and a virtual currency Ponzi scheme.¹³³ In Australia, the definition of a derivative in Section 761D of the Corporations Act is particularly complex, and its nuances are beyond the scope of this article, but in broad terms if the coin derives its value from an “underlying instrument” or “reference asset” which could, among other things, be a share, a share price index, a pair of currencies, a cryptocurrency, or a commodity, the coin could well be a derivative and any business offering it would need to hold an Australian financial services license.¹³⁴

Finally, as one would expect, most regulators have stated that AML/CTF regulations apply to ICOs, as well as exchanges and payment systems facilitating ICO trading, clearing, and settlement, a view which has now been confirmed and reinforced by the world's global AML/CTF standard-setter, the Financial Action Task Force (“FATF”).¹³⁵

D. Crowdfunding Legislation

The crowdfunding rules that have been established in some jurisdictions could apply under certain circumstances if the ICO initiators ask for consideration; the application of such rules tends to reduce the regulatory burden. Since crowdfunding legislation is not uniform across markets, we can merely summarize the most common aspects.

There are two primary forms of crowdfunding legislation. The first type modifies existing financial laws for small issuers and brokers of those issuers with a view to lightening the regulatory burden. Under the second type, regulators provide thresholds for exemptions from prospectus and other financial ***302** law requirements.¹³⁶ For instance, the laws of the United States,¹³⁷ Canada,¹³⁸ Austria,¹³⁹ and Germany¹⁴⁰ limit exemptions from prospectus requirements for crowdfunded projects based on the size of the offering--ranging from 250,000 to 8 million USD/CAD/EUR--and the amount of money invested per retail investor, with limits ranging from 1000 to 10,000 in the respective currency per investor depending on the country and the investors' wealth. Ninety-five percent of the ICOs in our Whitepaper Database where the total desired offering size is disclosed exceed the first threshold. Of course, capital raised can be much lower; according to the ICObench Database one third of the ICO collects more than \$8 million. We lack the data to make a qualified statement on the second threshold per investor.¹⁴¹ But we doubt that ICOs in the absence of institutional investments would reach the total volumes they are raising with capital injections capped at the 1000/10,000 limit. Evidence suggests that many ICOs have been characterized by small numbers of large investors, combined with large numbers of small investors.¹⁴²

In addition to these, many jurisdictions also provide longstanding exemptions from or relaxations of securities and companies law requirements relating to prospectuses and other aspects of offerings to small numbers of investors typically in the form of non-public offerings and/or to professional investors only. These are often used in the crowdfunding context and specific crowdfunding legislation often also extends or clarifies aspects of these sorts of offerings, with the result that many offerings, including ICOs, are structured in order to fall within these frameworks particularly in the context of offerings open to U.S. investors, with Regulation D structures being the most commonly used.

***303** Australia has taken a different approach to crowdfunding and ICOs. The Corporations Amendment (Crowd-sourced Funding) Act 2017 (Cth) came into effect in September 2017 and stipulates a new regime that requires companies engaging in crowdfunding to hold an Australian financial services licence with an authorization to facilitate crowd-sourced funding

activities.¹⁴³ However, ASIC has reiterated that ICOs are different from crowdsourced funding.¹⁴⁴ In its information sheet, ASIC clarifies that “[c]rowd funding using an ICO is not the same as ‘crowd-sourced funding’ (“CSF”) regulated by the Corporations Act.”¹⁴⁵ ICOs are not covered by the new regime. As a result, traditional exemptions from offering for private and/or professional offers may still apply.

E. Summary

For those ICOs which take the functional form of charitable or rewards tokens, it is likely that financial law will not apply unless it is expressly extended to do so. At the same time, in any ICO for consideration, applicable contractual and consumer protection frameworks will most certainly apply. Financial law and regulation may apply to many of those classified as financial tokens, including most equity tokens and many currency tokens. In addition, financial law and regulation will arguably apply to many of the intermediaries engaging in trading, clearing, custody, and settlement of tokens which can be classified as financial products.

All in all, we conclude that financial law could apply and should apply to *most* of the ICOs in the Whitepaper Database, in particular equity tokens and any others which are not functionally purely donation or rewards structures.

In many cases, however, we lack the information necessary to establish whether the criteria for the application of specific financial law are met.

Moreover, in skilled hands, it is often easy to structure an ICO in such a way that it lacks one or more technical characteristics necessary for financial law in a given jurisdiction to apply.¹⁴⁶ For instance, if the reference value of the instrument is not financial in nature, Europe's MiFID will not apply. Likewise, in the context of definitions of securities, almost all jurisdictions continue to have “laundry list” based definitions (i.e. securities are most commonly defined as stocks, bonds, and/or debentures). In these cases it is quite possible that many structures which are functionally investment products of some form may fall outside the definition and the resulting regulatory *304 framework. A small number of jurisdictions follow the U.S. approach in having a functional test in addition to the laundry list; however, many jurisdictions still lack the ability to functionally define investment products, meaning that clever structuring may be used to avoid the technicalities of securities regulation in many jurisdictions.

IV. DESIGNING AN APPROPRIATE POLICY AND REGULATORY RESPONSE

From this analysis arises the question of whether or not these existing frameworks are appropriate to address the risks inherent in a market which until very recently was clearly a highly hyped market and more broadly to secure the longer-term benefits that these new structures offer for early stage financing for blockchain-related and other innovative projects.

In the preceding sections, we have highlighted the large range of excesses and risks to be found in the ICOs to date. At the same time however it is worth noting that the combination of blockchain and crowdfunding that lies at the heart of ICOs has important potential benefits for early stage financings--a sector whose needs are rarely addressed adequately by our current financial systems. In this regard, the rise of ICOs is in part a response to a market failure, in addition to a form of regulatory arbitrage.

ICO tokens are typically offered, stored, and managed on a blockchain. The core features of blockchain which give it its tremendous potential to transform existing systems rest on security, transparency, and permanence. These features mean it offers much for the redesign of existing financial infrastructure including securities settlement systems and trade finance. In the context of early stage financing, which often suffers from lack of transparency and concerns over fraud and misbehavior, the combination of security, transparency, and permanence potentially allow for much greater reach (the “democratization” of finance), investor protection (through disclosure and transparency), and confidence (through protecting investors with security of property interests). This combination of features makes the structure potentially powerful in providing financing for new and innovative ideas, something that ICOs have most certainly done for blockchain projects--although, as we have noted, a

significant amount of this may have been unfortunately misallocated on the basis of irrational investor herd behavior or diverted through fraud and outright theft.

Regulatory responses thus require a careful and thorough consideration of policy options and impact. We typically see a range of possible approaches to any financial innovation, from prohibition to laissez-faire approaches and a spectrum of options in between. We now analyze these before concluding in favor of a series of nuanced, balanced initiatives involving private ordering to reduce information asymmetries and concerted action by financial regulators.

***305 A. Prohibition**

One option in approaching financial instruments and developments--new, innovative, or otherwise--is prohibition: making the particular market or instrument illegal. In the case of ICOs, this is one of a range of possible options and one which has been in fact adopted in China and South Korea.

Following hard on the heels of the U.S. SEC's warning against "pump and dump" ICO schemes,¹⁴⁷ in September 2017, China and South Korea announced their outright bans on ICOs.¹⁴⁸ Seven Chinese government regulators, led by the People's Bank of China, issued a joint statement confirming ICOs as "unauthorized illegal fundraising activity,"¹⁴⁹ and explicitly treating them as financial fraud and pyramid schemes.¹⁵⁰ The document defines an ICO as any fundraising process whereby digital tokens are distributed to investors making financial contributions in cryptocurrencies.¹⁵¹ Claiming that ICOs have caused severe economic and financial disruption,¹⁵² China called for an immediate stop to current ICO activities and for all completed offerings to arrange refunds.¹⁵³ It likewise banned all ICO platforms from facilitating new issuances and all financial and payment institutions from dealing in ICOs.¹⁵⁴ ICOs that continue to function were threatened with severe punishment, and contravening exchanges will risk having their business registration revoked and their website shut down.¹⁵⁵ In short, when China decides to prohibit an activity, it certainly does so decisively, clearly, and comprehensively--although it is reported that private trading activity in cryptocurrencies defies the ban.¹⁵⁶

In September 2017, South Korea's Financial Services Commission likewise announced its imminent crackdown, explaining that ICOs appear to have directed market funds in a "non-productive speculative direction."¹⁵⁷ Without defining ICOs, South Korea advised that the ban will encompass all forms of cryptocurrency fundraising, irrespective of their terminology *306 and their underlying technology,¹⁵⁸ and will also extend to the margin trading of cryptocurrencies.¹⁵⁹ "Stern penalties" will be issued against any business or person that breaches this prohibition.¹⁶⁰

The Chinese and South Korean solutions have an initial appeal as they appear to provide legal certainty at low regulatory cost. Upon reflection, however, an outright ban may be an overly strict response. It overemphasizes the control of risk and underemphasizes the importance of innovation, and the great difficulty, in many jurisdictions, that innovative FinTech start-ups experience in securing funding. Moreover, the legal certainty may in practice prove to be somewhat spurious. Given how many different forms ICOs currently take, some may prove permissible unless definitions are drawn exceptionally broadly.

In addition, historical experience with outright prohibitions on financial activities suggests that these are usually ineffective and/or counterproductive. Perhaps the best examples arise in the context of the U.K.'s Bubble Act of 1720 prohibiting the creation of new joint stock companies or the U.S. prohibition on onion futures.¹⁶¹ This debate has appeared more recently in the context of OTC derivatives in the aftermath of the 2008 Global Financial Crisis, with the result that some jurisdictions, namely the EU, have created prohibitions in very limited areas such as the naked sovereign CDS.¹⁶²

B. From Doing Nothing to Private Ordering: Reducing information asymmetry

At a second level, jurisdictions facing new financial developments could do nothing, in order to allow markets to develop. The initial approach to ICOs and cryptocurrencies in most jurisdictions was to do nothing. This could be seen as an attempt to avoid regulating too early. It could also be seen potentially as an attempt to sidestep the challenge of new technology and financial innovation.

Given the very rapid growth of the market we document, this approach no longer seems appropriate either from the standpoints of potential risks or the market's future development. Given that most whitepapers in our database lack almost all the information required to assess which laws apply, we suggest the first step must be measures to reduce information asymmetries and improve the quality of offerings in the market. This is essential not only in addressing a core market failure but also in avoiding a potentially ^{*307} overzealous regulatory response which would result in a market collapse and the potential discrediting of the structure, as discussed with respect to the South Sea Bubble and the Bubble Act of 1720, and their stifling impact on the early development of the joint stock company.

Private ordering--market participants developing frameworks to police their own behavior out of their own self-interest--is the classic response and the one we saw in the early nineteenth century as self-regulatory stock exchanges emerged to police behavior in the trading of joint stock company shares, based on the view that if investors felt their interests were secure, they would be more likely to put their money into the market, which in turn served the financial interests of the brokers and dealers who owned and controlled exchanges and controlled the new offerings of stock and other securities to investors.

In this respect, a similar process is now taking place among ICO industry participants with a number of participants seeking to develop best practice guidance in order to improve the quality of the market, and to head off potentially overzealous regulatory responses. As one example, the SAFT Project in the United States seeks to work towards creating an international formal framework for token sales, and it has published its own whitepaper. The whitepaper raises a number of legal concerns, most significantly that most direct presales of tokens likely constitute securities under U.S. law, and accordingly most ICOs are likely to be in breach of U.S. securities law.¹⁶³ While the whitepaper only focuses on the implications of U.S. law at the time of writing, it calls for harmonization of international standards and expressly calls for the participation of lawyers, investors, and others to collaborate on the development of the framework.¹⁶⁴ In an interview with CoinDesk, Marco Santori, one of the individuals behind the Project, said he sees the whitepaper as "the start of a conversation."¹⁶⁵ And when parts of the industry themselves call for and develop tools for standardization, this raises questions as to when and to what extent regulators should step in, if at all.

In the context of blockchain more generally, a further step is taking place in the ongoing development of an ISO certification process. This process would provide for a level of independent certification that an individual blockchain in the context of an ICO met expected industry standards in terms of security and other core aspects.

It is an open question however whether private ordering will be sufficient, particularly in the context of financial ICOs and--based on experience with the development of other financial innovations--we would suggest that it ^{*308} may well not, and that a more direct regulatory response from regulators and policy makers will be appropriate.

C. Regulatory Warnings

A far less interventionist option than prohibition is simply for the relevant regulator--usually the securities or financial conduct regulator--to issue warnings to the market. This is less severe than prohibition but serves an important signaling function to markets and participants. Many regulators have now done so, some repeatedly, with respect to ICOs. These have now been collected and publicized by IOSCO on its website.¹⁶⁶

On July 25, 2017, the U.S. SEC issued a warning to investors about investing in ICOs.¹⁶⁷ This was followed by a series of warnings by other regulators, some in much greater specificity, including by the Monetary Authority of Singapore on August 10, 2017,¹⁶⁸ the Hong Kong Securities and Futures Commission on September 5, 2017,¹⁶⁹ the U.K. Financial Conduct Authority on September 12, 2017,¹⁷⁰ the Australian Securities and Investments Commission on September 28, 2017,¹⁷¹ and the German regulator, BaFin, on November 9, 2017,¹⁷² and again on November 15, 2017.¹⁷³ The EU's ESMA also issued two warnings about ICOs, targeted at consumers and firms respectively, each on November 13, 2017.¹⁷⁴

On August 28, 2017, the U.S. SEC issued an alert warning to investors about companies touting their investments in ICOs as part of “pump-and-dump” or other market manipulation schemes to improperly influence their price.¹⁷⁵ The SEC warned that trading suspensions had been imposed on the stock of some issuers due to claims they had made about their investments in ICOs, and that investors should exercise caution if current information about a company's stock is not available, or if it is a non-reporting company.¹⁷⁶ Investors were warned to be wary of attempts to manipulate the *309 market by spreading false and misleading information and creating a buying frenzy, and specifically warned about companies that claim their ICO is “SEC-compliant” without further explanation.¹⁷⁷

Other warnings have emphasized the danger of “whitepapers” provided by issuers being incomplete, misleading, unaudited, or, in the words of BaFin, “objectively insufficient.”¹⁷⁸ All such warnings also indicate the high risk of fraud, particularly where the ICO is not regulated, with BaFin describing this risk as “systemic”;¹⁷⁹ the U.K. FCA giving the example of issuers using funds raised in a different way to that which was promised in the marketing;¹⁸⁰ and ESMA noting that several ICOs have already been identified as being involved in fraudulent activities.¹⁸¹ The Hong Kong SFC and ESMA have further warned that the risk of fraud is increased by digital tokens being anonymously held.¹⁸² In addition, BaFin has warned that verification of the provider's identity and reputation is typically left to the consumer alone, and there is no guarantee that any personal data provided will be protected to German standards.¹⁸³

The central element to these warnings is that ICOs are largely unregulated in all the above jurisdictions, and investors will have no recourse or protection if the ICO they invest in is unregulated. A number of regulators, such as the U.S. SEC, Australia's ASIC and Hong Kong's SFC, note that some ICOs have features that may see them classified as “securities” and “regulated activities” under securities law, which would then trigger registration or authorization requirements.

Both BaFin and ESMA warn that ICOs are generally issued by businesses in their early stages of development, and for this reason there is an inherently high risk of losing all of one's invested capital. There may also be a lack of exit options, and no, or highly limited, ability to trade the tokens in exchange for traditional currency. Unlike the other warnings, ESMA specifically warns that distributed ledger technology is untested and may be flawed or subject to hacking.¹⁸⁴

ESMA's notice directed at firms alerts them to the importance of considering whether their ICO activities constitute “regulated activities.” Where coins constitute “financial instruments,” it is likely that the firm will be engaged in regulated activities such as the placement of financial instruments. The warning gives a high-level summary of the EU laws which could then potentially be applicable to ICOs, for example the requirement for the publication of a prospectus as opposed to a whitepaper, conduct of business *310 rules, transparency and due diligence requirements, authorization rules, and prohibitions on anti-money laundering and terrorist financing.

Such warnings are a standard tool of regulators, and may well have had an effect in these cases. For instance, it is reported that the proportion of ICOs per month that missed their goals went up from only 7% in June 2017 to 66% in September 2017.¹⁸⁵ This could be attributed to the chain of regulatory warnings. However, any warning may cease to be effective when prices continue to rise. Our sample gives evidence of this fact since the failure rate of offerings commencing after October 2017 is lower than

those previously commenced. Yet if the warnings were effective, we would expect fewer ICOs to meet their minimum targets. Further, as depicted in Figures 9 and 10, more ICOs with large amounts of capital raised came to market after those warnings than before;¹⁸⁶ the bubble expanded despite the warnings.

In summary, just as earlier warnings on cryptocurrencies have had very limited impact on the Bitcoin hype-cycle long-term,¹⁸⁷ we do not believe the ICO-related warnings will end the gold rush in which ICO entrepreneurs seek their fortune. This is because regulatory warnings can serve to attract undesirable promoters into the ICO market if their message is that ICOs are unregulated, i.e. that the offerings and sales practice are unsupervised. Furthermore, the warnings to date have, somewhat remarkably, failed to address the deficiencies we have identified around the promoters and issuers of ICOs often being unidentifiable. This deficiency denies investors their practical private law legal rights. Legally, many ICOs operate in the dark. This is even worse than the 17th century tulip bubble and similar events over the centuries--most of the victims then at least knew who had deprived them of their assets.

Accordingly, given today's incredibly rapid market development, prohibition appears an unjustified and probably ineffective response, and the combination of warnings and private ordering will probably also prove insufficient. So we move on to analyze the other options.

D. Enforcing Existing Laws Through Concerted Action

The question then arises as to whether existing financial regulatory frameworks are sufficient to address this new market. As we suggest in Part IV above, a wide range of financial regulatory frameworks may apply in the context of ICOs.

In our framework, the key is to understand the nature of the individual ICO and its related infrastructure: those with an investment element should fall within the scope of financial regulatory frameworks, which in many *311 cases will be sufficient to address problems which arise and to secure the viability of the structure once market participants become familiar with the application of existing frameworks.

Once who is behind the ICO and how the proceeds are to be used are known, it becomes possible to enforce existing laws based on the functional nature of any given structure.

Generally speaking, we would suggest--following our analysis above--that ICOs falling largely into donation or rewards categories should be left to general legal and consumer protection frameworks, similar to donation and rewards crowdfunding in many jurisdictions. This however should be supplemented by private ordering, particularly in the context of industry certification (i.e. ISO) for blockchains, including those involved in ICOs.

For equity and investment ICOs, these should fall into the scope of financial law and regulation, with a particular regulatory focus on intermediaries and market infrastructure providers such as exchanges, where many of the most high-profile problems have emerged. This topic is beyond the scope of the current-- already lengthy--analysis however.

In the absence of specific legislation to this effect, financial regulators could promote best practices to that end and interrogate ICOs based on the assumption that financial legislation applies. In most jurisdictions, financial regulators have the right to start an investigation where there are reasonable grounds to assume that financial law does apply.

In order to enhance efficiency, regulators could ask for evidence supporting the information provided by the ICO initiator. For instance, auditors may be required to certify the information sent to regulators.

If the outcome of such an investigation is that financial law does not apply, the financial regulator could (i) issue a warning notice that a certain ICO is not regulated by any financial regulator, and (ii) forward the information regarding the ICO to the

relevant consumer protection agency. If the outcome is that financial law does apply, financial regulators have all the traditional enforcement methods at their disposal, ranging from requiring additional disclosures to outright bans by virtue of cease-and-desist orders¹⁸⁸ and emergency asset freezes.¹⁸⁹

Since it is not certain whether financial law will apply, concerted action from public enforcement agencies in a range of domains may be required. For instance, in addition to financial regulators, information could be shared with consumer protection agencies as well as the police and criminal investigators in the case of fraud.

The U.S. SEC has been proactive in applying U.S. securities laws to ICOs, perhaps because of the very large number of reported issuances in the United States.¹⁹⁰ On November 16, 2018, the enforcement actions against Paragon Coin and Airfox were settled. The SEC in each case took the view that the tokens were securities and required each company to refund all consideration raised, plus interest, and pay a \$250,000 fine.¹⁹¹ Indeed, if we are to make predictions, we expect to see other jurisdictions follow the U.S. lead in a series of such enforcement actions initiated by regulators precisely to send a message to the market that simply raising money on a blockchain does not put the activity beyond the purview of relevant laws. In other words, watch this space, especially in the countries that are hosting the most ICO activity and wish to be seen as credible regulators.

E. Widening the Scope of Financial Law?

In some circumstances, it may well prove necessary to widen the scope of financial law and expand existing restrictions. Functional definitions, such as the *Howey* test in the United States, are better able to adapt to the changing marketplace of ICOs. By contrast, when existing financial, legal, and regulatory frameworks do not apply to currency and investment ICOs, because of drafting limitations and laundry list definitions, there is a clear need for changes to bring such ICOs within the scope.

It is probably unnecessary to apply the spectrum of financial regulation to all ICOs, namely those that are effectively donation or rewards structures. For example, if one regulates all tokens that grant some rights of use in return for consideration including true functional utility tokens or rewards structures, all license-based business models such as online music stores and software licenses would fall logically into such a regulatory net unless expressly exempted. Such a step would expand financial law beyond its natural limits. While consumer protection is an increasingly accepted objective of financial law, financial regulators may not be the best equipped to combat wide-ranging consumer fraud, whether or not perpetrated on a blockchain. What justifies the application of financial law when, for instance, a tulip bulb is sold via a blockchain-based token instead of in a gardening store?

At the same time, we suggest that all ICOs, regardless of what the token represents, should be required to provide certain information. This could be done in the context of private ordering, particularly in industry and/or ISO guidelines or certifications, but in its absence, legal and regulatory changes would be needed, likely on a cooperative international basis. These would--similar to basic prospectus or crowdfunding rules--require the following information:

- name, address and Legal Entity Identifier of the issuer, plus names and addresses of key people;
- ***313** • target group of the ICO, including a specification of whether retail or professional participants are targeted, with any regional restrictions;
- details of the participants' rights and obligations;

- details of how the participants' consideration is to be treated;
- details of any intermediary that may store the participants' consideration as well as the mode of storage;
- details of all fees, costs, etc. to be charged against the participants' consideration; and
- details on the applicable laws and regulations.

Russian draft legislation for ICO regulation published on January 25, 2018 seeks to reduce information asymmetry.¹⁹² In addition to requiring the information we ask for above,¹⁹³ it imposes a retail cap of about \$900 which is not unlike the funding caps we have seen in crowdfunding legislation¹⁹⁴ and aims to protect retail participants.

CONCLUSION

The paucity of research available on ICOs is only matched by the paucity of information typically available to ICO participants prior to their decision to participate. More than two thirds of the ICO whitepapers in our dataset are silent on the issuing entity, the initiators or backers or do not provide contact details of these parties, and an even greater share do not elaborate on the applicable law, segregation or pooling of client funds, or the existence of an external auditor. Accordingly, the decision to invest in them often cannot be the outcome of a rational calculus. Furthermore, as most recent legislative initiatives have focused on financial actors, the regulatory situation of many ICOs is unclear, as they vary in form and structure and will often exist in very grey areas in terms of regulatory treatment. Based on our analysis, we believe ICOs will in many cases raise consumer protection issues, but only in some cases will financial regulators be able to take action.

***314** While some regulators have taken decisive steps including prohibition through an outright ban of ICOs, we prefer a more nuanced approach, especially as funding to support innovative, high-tech activities is so difficult to raise in many countries.

Our approach is first to seek to reduce the key issue regarding ICOs, which is information asymmetry. Private ordering--particularly in the context of industry certification of blockchains and industry guidance on best practices for ICOs--will have an important role. These approaches may well be sufficient in the context of non-financial ICOs--i.e. those falling into the category of donation or rewards-based structures--when combined with existing private law and consumer protection arrangements. However, we suggest that this is unlikely to be sufficient for equity and investment ICOs.

In the context of these financial ICOs, the starting point should be existing financial regulatory frameworks. Most financial regulators worldwide have the right to require information from anyone if there are serious grounds to believe that financial legislation applies. Acquiring this information would enable, as a second step, the enforcement of existing legislation rigorously in a concerted movement among consumer protection agencies, financial regulators, and criminal investigators, through emergency asset freezes in cases of fraudulent ICOs and outright bans in cases of insufficient disclosure.

In the context of financial regulation, a particular focus should be on digital asset intermediaries and infrastructure providers such as exchanges, custodians, and clearing and settlement arrangements, with a distinction between those catering only to non-financial products (donation and rewards structures) and those catering to financial products (equity and investment structures).

Exchanges and other intermediaries and infrastructure providers which cover both should have to meet the stronger regulatory requirements in the context of financial regulation. Core to these are segregation of assets and other traditional regulatory requirements, including minimum capital. This is an area where private ordering will be important but it is also an area where international standard setting through IOSCO and similar organizations will have an important role. This however is a topic for another day as many regulators are still scrambling to understand fully the potential uses, and impacts, of ICOs and blockchain more generally. This pertains on the one hand to the impact of private ordering and the necessity of regulating intermediaries in the cryptoasset world, and to the benefits and downsides of distributed ledger technology in general.

In jurisdictions where it is unclear whether or not equity and investment ICOs are covered by the existing financial regulatory framework, changes will be necessary to make sure that such structures indeed fall into the regulatory system. There is a role for international standard setters such as IOSCO in this context.

*315 One of the difficulties with many ICOs is their cross-border dimension. Where consumers from many countries are involved, it will be difficult to determine a lead regulatory agency and it may be that no agency is interested in leading given the quantum of the regulator's costs relative to the small impact in their jurisdiction. Further, it will be particularly difficult to establish the relevant jurisdiction as long as it remains unclear who is behind the ICO and where the instigators are domiciled. But this is all the more reason for regulatory cooperation globally to move forward and develop rules designed at the least to remove the information asymmetry we have identified. As increasing amounts of money flow into ICOs, some with highly uncertain prospects, the greater the risk becomes of a very hard landing that will severely damage risk-tolerant, younger tech aficionados, and thereby severely reduce access to funding for serious tech innovators who seek to take advantage of blockchain technology to raise funds in creative and responsible ways.¹⁹⁵

Footnotes

^{a1} Professor of Law, ADA Chair in Financial Law (Inclusive Finance), Faculty of Law, Economics and Finance, University of Luxembourg, and Director, Centre for Business and Corporate Law, Heinrich-Heine-University, Düsseldorf, Germany.

^{aa1} KPMG Law-King & Wood Mallesons Chair of Disruptive Innovation, Scientia Professor, and Member, Centre for Law, Markets and Regulation, UNSW Sydney.

^{aaa1} Kerry Holdings Professor in Law and Co-Founder, Asian Institute of International Financial Law, Faculty of Law, University of Hong Kong.

^{aaaa1} LL.B., LL.M., research assistant at the ADA Chair in Financial Law (Inclusive Finance), Faculty of Law, Economics and Finance, University of Luxembourg.

This article benefitted from comments by, and discussions with Janos Barberis, Iris Barsan, Jon Frost, Jean-Louis Schiltz, Rolf Weber, Nasir Zubairi, and a number of others at presentations by the authors at a range of public and private events around the world, including in the United States, Canada, Australia, the EU, Switzerland, Singapore, and Hong Kong, among others.

The authors gratefully acknowledge the financial support of: the Luxembourg National Research Fund, project "A new lane for Fintechs-SMART Regulation," INTER/MOBILITY/16/11406511; the Australian Research Council, project "Regulating a Revolution: A New Regulatory Model for Digital Finance"; and the research assistance of Véréna Olivia Christine Bilo, Pamela Cela, Jessica Chapman, Tsany Ratna Dewi, Anoushka Murday, Emilija Pashoska, Breeze van Eck, Robin Veidt, Miko Yeboah-Smith, and Wilson Zhang. All responsibility is the authors'.

¹ Per Feb. 15, 2019, the website ICORating listed 5223 ICOs, the website TrackICO listed 4170 ICOs and the website ICObench listed 5320 ICOs. ICObench, <https://perma.cc/E4DD-E9LY> (last visited Mar. 2, 2019); ICORating, <https://perma.cc/4NFX-XXUH> (last visited Mar. 2, 2019); TrackICO, <https://perma.cc/YGH7-94AF> (last visited Mar. 2, 2019). See Olga Kharif, *Only One in 10 Tokens Is in Use Following Initial Coin Offerings*, BLOOMBERG (Oct. 23, 2017), <https://perma.cc/ZB9Y-ELCV>.

² *Infra* Sections I.F and II.D. For the first half of 2018 alone, estimates reached \$12 billion. See Benjamin Robertson, *Crypto Bulls Pile Into ICOs at Record Pace Despite Bitcoin Rout*, BLOOMBERG (Aug. 2, 2018), <https://perma.cc/DK63-F37M>.

- 3 Whereas total ICO volume was \$26 million in 2014 and \$14 million in 2015, it rose to \$222 million in 2016 and reached \$1266 million in the first six months of 2017. *See #TOKEN MANIA, AUTONOMOUS NEXT*, <https://perma.cc/8KT4-JP5R>. Our data suggest that the total ICO volume in the second half of 2017 by far exceeded the sum of all previous ICOs together; those numbers were by and large matched by those of the period of January to July 2018. After August 2018 the capital raised by ICOs was in decline, and so was the number of ICOs. *See infra* Section II.D.
- 4 *See* Camila Russo & Ilya Khrennikov, *Big Investors Circle Telegram's ICO While Veteran Crypto Insiders Pass*, BLOOMBERG (Feb. 2, 2018), <https://perma.cc/Y7KM-6D2G>.
- 5 *See* Tamlin Magee, *Biggest initial coin offerings*, TECHWORLD (Aug. 13, 2018), <https://perma.cc/W4WL-FXXW>. We have chosen to exclude the RedCab ICO from our analysis as we could not secure reliable consistent data about it, and our information requests to its initiators went unanswered. For some information on it, see TrackICO, *RedCab (REDC)*, <https://perma.cc/N7AA-K8T5> (last visited Mar. 2, 2019).
- 6 *See infra* Part I.
- 7 On the legal perspective of ICOs, see Iris M. Barsan, *Legal Challenges of Initial Coin Offerings*, 3 REVUE TRIMESTRIELLE DE DROIT FINANCIER 54 (2017); Shaanan Cohnney, David A. Hoffman, Jeremy Sklaroff, David Wishnick, *Coin-Operated Capitalism*, 119 COLUM. L. REV. 591 (2019); Usha Rodrigues, *Law and the Blockchain*, 104 IOWA L. REV. 679 (2019); Jonathan Rohr & Aaron Wright, *Blockchain-Based Token Sales, Initial Coin Offerings, and the Democratization of Public Capital Markets* (Cardozo Legal Studies Research Paper No. 527, Oct. 4, 2017), <https://perma.cc/4565-9RRT>; Kevin Werbach, *Trust But Verify: Why Blockchain Needs Law*, 32 BERKELEY J.L. & TECH. 487 (2018).
- 8 *See, e.g.,* Munchee Inc., Securities Act of 1933 Release No. 10445 (SEC Dec. 11, 2017), <https://perma.cc/ET52-T99G>; Press Release, U.S. Securities and Exchange Commission (“SEC”), SEC Exposes Two Initial Coin Offerings Purportedly Backed by Real Estate and Diamonds (Sept. 29, 2017), <https://perma.cc/4GJW-QSWU> (stating that the SEC “today charged a businessman and two companies with defrauding investors in a pair of so-called initial coin offerings (ICOs) purportedly backed by investments in real estate and diamonds. The SEC alleges that Maksim Zaslavskiy and his companies have been selling unregistered securities, and the digital tokens or coins being peddled don't really exist. According to the SEC's complaint, investors in REcoin Group Foundation and DRC World (also known as Diamond Reserve Club) have been told they can expect sizeable returns from the companies' operations when neither has any real operations. Zaslavskiy allegedly touted REcoin as ‘The First Ever Cryptocurrency Backed by Real Estate.’ Alleged misstatements to REcoin investors included that the company had a ‘team of lawyers, professionals, brokers, and accountants’ that would invest REcoin's ICO proceeds into real estate when in fact none had been hired or even consulted. Zaslavskiy and REcoin allegedly misrepresented they had raised between \$2 million and \$4 million from investors when the actual amount is approximately \$300,000”); Press Release, SEC, SEC Emergency Action Halts ICO Scam (Dec. 4, 2017), <https://perma.cc/SG8A-YXRY>. Another example involves the Swiss regulator:
- FINMA has closed down the unauthorised providers of the fake cryptocurrency ‘E-Coin’ For over a year since 2016, the QUID PRO QUO Association had been issuing so-called ‘ECoins’, a fake cryptocurrency developed by the association itself. Working together with DIGITAL TRADING AG and Marcelco Group AG, the association gave interested parties access to an online platform on which E-Coins could be traded and transferred. Via this platform, these three legal entities accepted funds amounting to at least four million Swiss francs from several hundred users and operated virtual accounts for them in both legal tender and E-Coins. This activity is similar to the deposit-taking business of a bank and is illegal unless the company in question holds the relevant financial market licence
- Press Release, Swiss Financial Market Supervisory Authority (“FINMA”), *FINMA Closes Down Coin Providers and Issues Warning About Fake Cryptocurrencies* (Sept. 19, 2017), <https://perma.cc/B8TD-TW7N>. *Cf.* Bitcoin Exchange Guide News Team, *Biggest 2018 ICO Scams, Ponzi Schemes, Crypto Thefts & Hacks So Far*, BITCOIN EXCHANGE GUIDE (Jul. 2, 2018), <https://perma.cc/UPY4-FT8M> (stating that the founders of the \$32 million Centratch ICO were put behind bars for fraud which included fake personas and celebrity endorsements, and that in the case of OneCoin, “the company advertised to investors, but there was not any actual company to invest in”); Amelia Tomasicchio, *Top 5 Cryptocurrency Scams*, BITCOIN CHASER (Jun. 2, 2017), <https://perma.cc/34G5-4CCM> (listing five scams with a total damage of more than \$50 million).
- 9 Regarding the Pincoin/Ifan ICO, it is reported that the founders “managed to fulfill their promises of cash rewards and returns, so the investors continued to bring in their friends and publicize the work that Pincoin was doing” while none of the information about the founders, and the team could be confirmed and the team eventually took off with its fiat money. *See* Bitcoin Exchange Guide News Team, *supra* note 8. Regarding the Tezos ICO (where \$232 million was collected while the founders had initially envisioned

a gross intake of only \$10 million), the Swiss news website Finews reports that the founders of Tezos (a U.S.-based couple and U.S. enterprise Dynamic Ledger Solutions) employed a Swiss foundation for launching its ICO in order to establish a new cryptocurrency “Tezzie.” According to that report, the U.S. couple claims \$20 million in commissions from the Swiss foundation. Further, key people of the foundation are said to demand bonuses and commissions out of the Tezos ICO. At the same time the news website reports that it is unclear a) whether Tezos investors will receive a return for their payments, and b) where the funds collected in the ICO and denominated in BTC and ETH are safekept. *See Tezos-ICO: Streit um Millionen im “Cryptovalley,”* FINEWS (Oct. 19, 2017), <https://perma.cc/L36Z-VLM3>. On the same ICO, another website reports violation of FINRA regulations regarding disclosure rules on compensation of key staff as well as on business development, and that the Tezos project has difficulties finding skilled staff. *See Blockchain-Projekt Tezos: Größter ICO droht zu scheitern,* DEUTSCHE WIRTSCHAFTS NACHRICHTEN (Oct. 21, 2017), <https://perma.cc/WX8S-EKF4>. Parts of the news were also reported on the websites of Fortune and CoinDesk. As of November 15, 2017, two class actions were filed against the Tezos founders, the Tezos Foundation and Dynamic Ledger Solutions--the Delaware-based company that holds Tezos' intellectual property--alleging that the founders deceptively sold unregistered securities in violation of both federal and state law when they raised \$232 million in an initial coin offering (ICO) in July. *See Aaron Stanley, Tezos Founders Hit With Second Class Action Suit,* COINDESK (Nov. 15, 2017), <https://perma.cc/UTT6-V6K3>. In at least one version of the Tezos whitepaper, payments were explicitly made as “donations” to the Tezos Foundation.

10 *See* Lulu Yilun Chen & Justina Lee, *Bitcoin Tumbles as PBOC Declares Initial Coin Offerings Illegal*, BLOOMBERG (Sept. 4, 2017), <https://perma.cc/2A8J-JL69>. For further details, see *infra* Section IV.A.

11 *See* Yuji Nakamura & Sam Kim, *Cryptocurrencies Drop as South Korea Bans ICOs, Margin Trading* BLOOMBERG (Sept. 29, 2017), <https://perma.cc/V5XB-HYXR>.

12 *See* Press Release, European Securities and Markets Authority (“ESMA”), ESMA Highlights ICO Risks for Investors and Firms (Nov. 13, 2017), <https://perma.cc/CYH7-XXQS> (stating that “ESMA is concerned that firms involved in ICOs may conduct their activities without complying with relevant applicable EU legislation.”). The national regulators coordinated by ESMA issued similar warning notices. *See e.g., AFM waarschuwt voor grote risico's bij Initial Coin Offerings*, AFM (NL) (Nov. 13, 2017), <https://perma.cc/JE4R-ZWXW>; Federal Financial Supervisory Authority (“BAFIN”), Consumer Warning: The Risks of Initial Coin Offerings (Nov. 9, 2017), <https://perma.cc/JM49-XZEN>; Financial Conduct Authority (“FCA”), Consumer Warning About the Risks of Initial Coin Offerings (Sept., 12, 2017), <https://perma.cc/Y69C-SLLB>. *See* Press Release, FINMA, *supra* note 8.

13 *See* Public Statement, SEC, SEC Statement Urging Caution Around Celebrity Backed ICOs (Nov. 1, 2017), <https://perma.cc/2Q69-KJ73> (demanding compliance with U.S. disclosure rules).

14 *See* Media Release, Monetary Authority of Singapore, MAS Clarifies Regulatory Position on the Offer of Digital Tokens in Singapore (Aug. 1, 2017), <https://perma.cc/W9KS-BLX6>; Press Release, SEC, Investor Bulletin: Initial Coin Offerings (Jul. 25, 2017), <https://perma.cc/7G6M-PUT4>; *SEC Thailand's Viewpoint on ICO*, SECURITIES AND EXCHANGE COMMISSION THAILAND (Sept. 14, 2017), <https://perma.cc/T77N-6HES>.

15 This message was conveyed by Canadian securities regulators on August 24, 2017. *See CSA Staff Notice 46-307: Cryptocurrency Offerings*, ONTARIO SECURITIES COMMISSION (Aug. 24, 2017), <https://perma.cc/4TY3-RRP5>.

16 For instance, French regulator AMF announced a two-pronged approach consisting of a new regulatory position on ICOs on which the AMF consulted with market participants from October to December 2017, on the one hand, and a new program dubbed “UNICORN,” on the other hand, which is “aimed at providing a mechanism for ICO organizers in France to carry out their plans under the agency's guidance.” Press Release, Autorité des Marchés Financiers, L'AMF lance une consultation sur les Initial Coin Offerings et initie son programme UNICORN (Oct. 26, 2017), <https://perma.cc/G75E-88JT>. In turn, the AMF launched a comprehensive set of ICO rules in September 2018, in order to attract innovators globally. *See Ana Berman, France Finalizes New ICO Framework to “Attract Innovators Globally,”* COINTELEGRAPH (Sept. 14, 2018), <https://perma.cc/AG6C-BUJ2>.

17 The Swiss government is seeking to foster Fintech innovation in relation to blockchain technology, in particular, while preserving Anti-Money Laundering (“AML”) and Know Your Customer (“KYC”) requirements. The Swiss government is exploring the creation of a new regulated entity called a “crypto-bank.” Moreover, digital currencies are not considered securities (and thus subject to Swiss securities regulation) but assets. Nevertheless, FINMA has clarified that AML and Counter-Terrorist Financing (“CTF”), banking, and securities trading, as well as collective investment rules, could apply. *See FINMA Guidance 04/2017: Regulatory Treatment of Initial Coin Offerings*, FINMA (Sept. 29, 2017), <https://perma.cc/VB7B-L259>. In February 2018, FINMA published a regulatory

guidance on ICOs, with a focus on the application of money laundering legislation. FINMA, *Wegleitung für Unterstellungsanfragen betreffend Initial Coin Offerings* (Feb. 16, 2018), <https://perma.cc/6XT6-K9HW>.

18 Singapore's regulator MAS does not consider digital currencies as regulated funding sources or payment instruments, but as assets; in turn, while the MAS regulates KYC and AML requirements it does not regulate virtual currency intermediaries nor the proper functioning of virtual currency transactions. At the same time, on August 1, 2017, MAS clarified that:

[I]f a token is structured in the form of a security, the ICO must comply with existing securities laws aimed at safeguarding investors' interest. So the requirements of having to register a prospectus, obtain intermediary or exchange operator licences, will apply. These intermediaries must also comply with existing rules on anti-money laundering and countering terrorism financing MAS does not and cannot regulate all products that people put their money in thinking that they will appreciate in value. But recognising that the risks of investing in virtual currencies are significant, MAS and the Commercial Affairs Department have published an advisory alerting consumers to these risks, and are working together to raise public awareness of potential scams.

Saktiandi Supaat, *Reply to Parliamentary Question on the Prevalence Use of Cryptocurrency in Singapore and Measures to Regulate Cryptocurrency and Initial Coin Offerings: Notice Paper 869 of 2017*, MAS (for Parliament Sitting on Oct. 2, 2017), <https://perma.cc/W9KS-BLX6>. For more on ICOs in Asia, see D.W. Arner, R.P. Buckley, D.A. Zetsche, B. Zhao, A. Didenko, C-Y. Park and E. Pashoska, *Cryptocurrencies, Blockchain and ICOs: Policy and Regulatory Challenges of Distributed Ledger Technology and Digital Assets in Asia*, in *CRYPTOASSETS: LEGAL REGULATORY AND MONETARY PERSPECTIVES* (Chris Brummer ed., forthcoming 2019).

19 See *infra* Section I.E.

20 Websites from which ICO documentation has been drawn include, among others, COINDESK (<https://perma.cc/D445-ZBUV>), COINFI (<https://perma.cc/C8YA-5C6T>), COINGECKO (<https://perma.cc/DD8J-QZM8>), COINMARKETCAP (<https://perma.cc/CBY4-PUHU>), COINRATING (<https://perma.cc/89VF-66BV>), COINSCHEDULE (<https://perma.cc/65FM-JN9>), CRYPTOPOTATO (<https://perma.cc/M9SV-Y633>), CRYPTOSLATE (<https://perma.cc/62KH-Y4F5>), ETHERSCAN (<https://perma.cc/FJC8-YH9A>), ICO ALERT (<https://perma.cc/BCG3-VSSQ>), ICOBENCH (<https://perma.cc/E4DD-E9LY>), ICO COUNTDOWN (<https://perma.cc/2374-3J97>), ICO DAILY (<https://perma.cc/B8VM-UMFY>), ICO DROPS (<https://perma.cc/NLB2-HB3D>), ICO HOT LIST (<https://perma.cc/W945-BCMJ>), ICOINDEX (<https://perma.cc/JE3H-TAAU>), ICO-LIST (<https://perma.cc/N342-QVPE>), ICO-MAP (<https://perma.cc/TXS8-R4HA>), ICO PANIC (<https://perma.cc/Y4CX-LZ6C>), ICOQUEST (<https://perma.cc/C5P8-SAHQ>), ICORATING (<https://perma.cc/4CYZ-N6JT>), ICO REPORT (<https://perma.cc/5VFM-635A>), ICOSTATS (<https://perma.cc/9CHA-SUW2>), ICO TRACKER (<https://perma.cc/UV98-U2AB>), SMITH + CROWN (<https://perma.cc/X2S6-V5EJ>), TOKENDATA (<https://perma.cc/95ZE-MMQT>), TOKENMARKET (<https://perma.cc/D8N8-MWAM>), TOP ICO LIST (<https://perma.cc/XD9T-96PP>), TRACKICO (<https://perma.cc/CZ48-7NGP>), and WORLDCOININDEX (<https://perma.cc/PQ47-52WW>). Note that our database is far from complete and is unlikely to ever be complete, given the quantity of ICOs currently taking place. Methodologies used by listing websites vary widely. For example, in the case of XRP, the total supply is inflated since only roughly 40% of XRP is in public circulation. The database merely functions as evidence of the variety of ICOs and of the legal concerns we seek to address herein.

21 For examples of the legal and governance aspects of Blockchain from the regulator's perspective, see ESMA, *REPORT: THE DISTRIBUTED LEDGER TECHNOLOGY APPLIED TO SECURITIES MARKETS* (Feb. 7, 2017); IOSCO, *RESEARCH REPORT ON FINANCIAL TECHNOLOGIES (FINTECH)* ch. 5 (Feb. 2017), <https://perma.cc/J86S-BCBK>; *Op-ed: Blockchain*, ASIC (Oct. 26, 2015), <https://perma.cc/H6TR-THNY>. From the academic perspective, see Lewis Rinaudo Cohen & David Contreiras Tyler, *Blockchain's Three Capital Markets Innovations Explained*, INT'L FIN. L. REV. (2016); Trevor I. Kiviat, *Beyond Bitcoin: Issues in Regulating Blockchain Transactions*, 65 DUKE L.J. 569 (2015-2016); Wessel Reijers et al., *Governance in Blockchain Technologies & Social Contract Theories*, 1 LEDGER 134 (2016); Carla L. Reyes, *Moving Beyond Bitcoin to an Endogenous Theory of Decentralized Ledger Technology Regulation: An Initial Proposal*, 61 VILL. L. REV. 191 (2016); Lawrence J. Trautman, *Is Disruptive Blockchain Technology the Future of Financial Services?*, 69 CONSUMER FIN. L.Q. REP. 232 (2016). From the French literature, see Primavera De Filippi & Michel Reymond, *La Blockchain: comment réguler sans autorité*, NUMÉRIQUE: REPRENDRE LE CONTRÔLE 83 (Tristan Nitot (dir.) & Nina Cercy eds. 2016); Pierre-Marie Lore, *blockchain: évolution ou révolution pour les contrats en France?* (2016) (M.B.A. thesis, Institute Léonard de Vinci), <https://perma.cc/7C8E-AXMX> (analyzing vulnerabilities from a contractual perspective).

22 For more on this topic, see Edward D. Baker, *Trustless Property Systems and Anarchy: How Trustless Transfer Technology Will Shape the Future of Property Exchange*, 45 SW. L. REV. 351 (2015-2016); V. Gerard Comizio, *Virtual Currencies: Growing Regulatory Framework and Challenges in the Emerging FinTech Ecosystem*, 21 N.C. BANKING INST. 131 (2017); Matthew P. Ponsford, *A*

- Comparative Analysis of Bitcoin and Other Decentralised Virtual Currencies: Legal Regulation in the People's Republic of China, Canada, and the United States*, 9 HONG KONG J.L. STUD. 29 (2015). From Spain, see Ma Nieves Pacheco Jiménez, *Criptodivisas: Del Bitcoin Al Mufg. El Potencial De La Tecnología Blockchain*, 19 REVISTA CESCO DE DERECHO DE CONSUMO 6 (2016).
- 23 Compare Catherine Martin Christopher, *The Bridging Model: Exploring the Roles of Trust and Enforcement in Banking, Bitcoin, and the Blockchain*, 17 NEV. L.J. 139, 140-55 (2016); Primavera De Filippi, *Bitcoin: A Regulatory Nightmare to a Libertarian Dream*, 3 INTERNET POL'Y REV. 1, 10 (2014); Joshua J. Doguet, *The Nature of the Form: Legal and Regulatory Issues Surrounding the Bitcoin Digital Currency System*, 73 LA. L. REV. 1119 (2012-2013); Reuben Grinberg, *Bitcoin: An Innovative Alternative Digital Currency*, 4 HASTINGS SCI. & L.J. 159, 171 (2012); Nikolei M. Kaplanov, *NerdyMoney: Bitcoin, the Private Digital Currency, and the Case Against Its Regulation*, 25 LOY. CONSUMER L. REV. 111 (2012-2013); Nicholas A. Plassaras, *Regulating Digital Currencies: Bringing Bitcoin within the Reach of the IMF*, 14 CHI. J. INT'L. L. 377 (2013); Misha Tsukerman, *The Block Is Hot: A Survey of the State of Bitcoin Regulation and Suggestions for the Future*, 30 BERKELEY TECH L.J. 1127 (2015); Peter Twomey, *Halting a Shift in the Paradigm: The Need for Bitcoin Regulation*, 16 TRINITY C.L. REV. 67 (2013); John O. McGinnis & Kyle W. Roche, *Bitcoin: Order without Law in the Digital Age* (Mar. 7, 2017) (Unpublished L. Res. Paper); Edward V. Murphy, M. Maureen Murphy & Michael V. Seitzinger, *Bitcoin: Questions, Answers, and Analysis of Legal Issues*, CONG. RES. SERV. (Oct. 13, 2015), <https://perma.cc/VV46-9TZB>. From Germany, see Benjamin Beck & Dominik König, *Bitcoins als Gegenstand von sekundären Leistungspflichten*, 215 ARCHIV FÜR DIE CIVILITISCHE PRAXIS 655 (2015); Franziska Boehm & Paulina Pesch, *Bitcoins: Rechtliche Herausforderungen einer virtuellen Währung - Eine erste juristische Einordnung*, MMR 75 (2014); DANIEL KERSCHER, *BITCOIN - FUNKTIONSWEISE, CHANCEN UND RISIKEN DER DIGITALEN WÄHRUNG* 120 (2013); Nico Kuhlmann, *Bitcoins - Funktionsweise und rechtliche Einordnung der digitalen Währung*, COMPUTER & RECHT 691 (2014); Gerald Spindler & Martin Bille, *Rechtsprobleme von Bitcoins als virtuelle Währung*, WERTPAPIERMITTEILUNGEN 1357 (2014).
- 24 Ether is the cryptocurrency used in the context of Ethereum, one of the most widely used blockchain systems. Ether has also become infamous as currency used for funding the Decentralized Autonomous Organization ("DAO"). See Mark Fenwick, Wulf A. Kaal & Erik P.M. Vermeulen, *Legal Education in the Blockchain Revolution* (Mar. 22, 2017) (unpublished Legal Stud. Res. Paper No. 17-05, U. St. Thomas) 31 *et seq*; Charlie Shier et al., *Understanding a Revolutionary and Flawed Grand Experiment in Blockchain: The DAO Attack* (Aug. 7, 2017) (unpublished manuscript), <https://perma.cc/VB55-A8RA>.
- 25 We are not using formal financial terms such as promoters, investors and the like, as the legal status of ICOs remains problematic and undecided.
- 26 The categories used here are based on categorizations provided by the ICO websites.
- 27 Stellar Development Foundation & Luxembourg House of Financial Technology, *Understanding Initial Coin Offerings: Technology, Benefits, Risks, and Regulations*, STELLAR 23 (Sept. 2017), <https://perma.cc/4B98-JZEN>.
- 28 Lex Sokolin, Global Director of Fintech Strategy at Autonomous NEXT, estimates that 80% of ICOs are doing presales. Cf. Olga Kharif, *Hedge Funds Flip ICOs, Leaving Other Investors Holding the Bag*, BLOOMBERG (Oct. 3, 2017), <https://perma.cc/98DM-VRHC>.
- 29 These risks are considered in detail in Part II, *infra*.
- 30 See Ryan Browne, *Wu-Tang Clan's Ghostface Killah Co-founded a Cryptocurrency Venture - Now It Wants to Raise \$30 Million*, CNBC (Oct. 4, 2017), <https://perma.cc/AQ4E-JW8N>; Eugene Kim, *Cryptocurrency Investors Worry about a Bubble as Jamie Foxx and Other Celebrities Jump on Board*, CNBC (Sept. 19, 2017), <https://perma.cc/9P33-8CC5>; Rob Price, *Paris Hilton Is the Latest Celeb to Back an ICO, the Hottest Craze in Tech Fundraising*, BUSINESS INSIDER (Sept. 4, 2017), <https://perma.cc/5PYB-RZ5K>.
- 31 See Press Release, SEC, *Statement on Potentially Unlawful Promotion of Initial Coin Offerings and Other Investments by Celebrities and Others* (Nov. 1, 2017), <https://perma.cc/FNL9-3XSA>.
- 32 For example, one token represents one newly offered cryptocurrency *SANDCOIN*.
- 33 The payment and equity characteristics can take several forms, for instance the token value can be modified by an additional component, similar to a derivative; for instance, the pay out or delivery of the reference value can be deferred like in a forward contract or conditioned on certain circumstances, for instance, that a certain reference index moves up or down, similar to derivatives.

- 34 On crowdfunding methodology, see *Opinion: Investment Based Crowdfunding*, ESMA 6 (Dec. 18, 2014), <https://perma.cc/3PHJ-MCH4>; *Crowdfunding in the EU Capital Markets Union*, EUROPEAN COMMISSION 8 (2016), <https://perma.cc/7F35-6UN6>; IOSCO, RESEARCH REPORT ON FINANCIAL TECHNOLOGIES, *supra* note 21.
- 35 For details, see *infra* Section I.D.
- 36 Data from ICORating and ICObench databases reflect distribution of ICOs self-categorized as utility tokens. See ICOBENCH, <https://perma.cc/E4DD-E9LY>; ICORATING, <https://perma.cc/4CYZ-N6JT>. By comparison, data from the WhitePaper Database reflect a sample of ICOs whose classification has been determined by the authors and thus hopefully free from the bias towards classification as a usage token inherent in self-categorization See *supra* note 20.
- 37 Among them are the following: (1) The Whitepaper Database has only 1042 ICOs while both the ICORating and the ICObench website have more than 5000 ICOs. We cannot exclude that all of the remaining ICOs not considered in our Whitepaper Database are utility tokens, although we doubt it. (2) For lack of a commonly accepted terminology the disclosures could rest on different characteristics for each token type. (3) The websites could have applied default settings indicating utility tokens. Even if they all self-define as utility tokens, that would in any event not answer the questions around the true functional nature of each ICO.
- 38 See *infra* Section IV.C.
- 39 *White Paper*, WIKIPEDIA, <https://perma.cc/G8N9-7568> (last visited Nov. 10, 2017).
- 40 Satoshi Nakamoto, *Bitcoin: A Peer-to-Peer Electronic Cash System*, BITCOIN, <https://perma.cc/5MMT-4H7W>.
- 41 Consumer protection issues and the risks associated with information asymmetry are considered in detail in Part IV., *infra*.
- 42 See, e.g., the Pally ICO from 2017, collecting \$33,508 according to TrackICO.io, for the creation of a decentralized social travel ecosystem that ‘enables travellers to create friendships and access authentic experiences in new cities through local people - using direct peer-to-peer payment’ (see <https://perma.cc/7W9C-3N67>); and the *Crypto Improvement Fund* ICO from 2017/18, collecting \$35,750, where tokens represent access to an educational platform and blockchain-related services provider that could be used as an all-in-one functionality as a business incentive, marketing tool and customer loyalty program.’ (see <https://perma.cc/36Q2-VK4K>).
- 43 For example, see the ICOs by EOS (Cayman Islands), <https://perma.cc/B2EU-4QQA>, and Telegram (British Virgin Island), <https://perma.cc/9RML-TBMM>.
- 44 See *supra* note 20.
- 45 See *infra* Section II.D.
- 46 Overall, 24% of the whitepapers considered provided a soft cap.
- 47 Of the ICOs listed, ICObench reports soft caps in 53% and hard caps in 73%, ICORATING in 38% and 46%, and TRACKICO in 37% and 45%. See ICOBENCH, <https://perma.cc/E4DD-E9LY>; ICORATING, <https://perma.cc/4CYZ-N6JT>; and TRACKICO, <https://perma.cc/CZ48-7NGP>.
- 48 On policy conclusions, see *infra* Section II.A.
- 49 For details, see Section I.B.
- 50 The nature of this promise varies and is subject to discussion, see *infra* Sections I.B-I.D.
- 51 See Danny Crichton, *Do Good Companies ICO?*, TECHCRUNCH (Dec. 16, 2017), <https://perma.cc/LAB9-MLWX>.
- 52 Joshua Brustein, *Bitcoin Is Challenging the Entire Concept of Venture Capital*, BLOOMBERG (Dec. 18, 2017), <https://perma.cc/RD8C-CJSF>.
- 53 See Martin Arnold, *Venture Capital Investors Urged to Wake Up to ICOs*, FINANCIAL TIMES (Oct. 2, 2017), <https://perma.cc/LCS9-LHQ3>.

In relation to Internet companies see Arjun Kharpal, *Initial Coin Offerings Have Raised \$1.2 Billion and Now Surpass Early Stage VC Funding*, CNBC (Aug. 9, 2017), <https://perma.cc/9C9T-PDX9>.

Brustein, *Bitcoin Is Challenging the Entire Concept of Venture Capital*, *supra* note 52.

See *Cryptocurrency ICO States 2017*, COINSCHEDULE, <https://perma.cc/B32K-UJXW> (last visited Dec. 21, 2017).

PRICEWATERHOUSECOOPERS & CB INSIGHTS, VENTURE CAPITAL FUNDING REPORT Q3 2017 (2017).

See FUNDERBEAM, INITIAL COIN OFFERINGS FUNDING REPORT (2017), <https://perma.cc/6KT3-RKEL> (for the various graphs and statistics compiled by Funderbeam in relation to total ICO funding, total rounds, and round sizes over time). For example, between 2016 and 2017, total funding through ICOs rose from \$228 million to \$2.6 billion.

See Jemima Kelly & Maiy Keidan, *Bitcoin 'Boom' Failing to Attract Big Name Investors*, INDEPENDENT (Oct. 23, 2017), <https://perma.cc/GC5J-MEWN> (citing data from technology research house autonomous. next). Cf. Edmund Mokhtarian & Alexander Lindgren, *Rise of the Crypto Hedge Fund: Operational Issues and Best Practices for Institutional Cryptocurrency Trading*, 23 STANFORD J.L. BUS. & FIN. 112 (2018) (providing a useful overview on crypto hedge funds).

Of the 19% of the whitepapers considered in our Whitepaper Database that provided some details on regulatory context, the disclosures range from AML/KYC over data protection requirements to securities qualification of token, a mere statement of compliance with existing financial laws, or sharia compliance, respectively, to gambling or betting regulations.

Our webscraped databases provide on restricted countries in 19.1% (ICORating), 31.81% (Track-ICO) and 34.1% (ICObench) of the cases, respectively.

See e.g., Lana Swartz, *What Was Bitcoin, What Will It Be? The Techno-economic Imaginaries of a New Money Technology*, 32 CULTURAL STUDIES 623 (2018); Alex Lielacher, *Blockchain and the Utopia of a Anarcho-capitalist Society*, CRYPTO NEWS (Oct. 13, 2018), <https://perma.cc/95RR-PDKS>.

Dirk Zetsche, Ross P. Buckley & Douglas W. Arner, *The Distributed Liability of Distributed Ledgers: Legal Risks of Blockchain*, 2018 U. ILL. L. REV. 1361 (2018).

Percentage values are authors' computations.

The EU/EEA countries are the origin of 33% of ICOs in TrackICO and 31% in our Whitepaper Database, the rest of Europe (including Switzerland and Russia) account for respectively 16% and 15%, and the Asia-Pacific (including Singapore and Australia) for some 23% and 27%; whereas North America represents some 17% and 15% respectively of ICO issuances. All data relating to complete datasets only.

Due to the lack of a global repository, selection bias could give an incorrect impression. Note that our sample can be skewed due to the selection of ICOs by the providers of the webpages from which our dataset was assembled.

See *Stats and Facts: Numbers of ICOs listed on ICObench per country of origin*, ICOBENCH, <https://perma.cc/LBK3-VZL3> (last visited Mar. 26, 2019).

See *id.*

See e.g., Greg Buchak et al., *Fintech, Regulatory Arbitrage, and the Rise of Shadow Banks*, 130 J. FIN. ECON. 453 (2018) (discussing regulatory arbitrage and its impact on the growth of FinTech).

See generally B. M. Roehner & D. Sornette, *"Thermometers" of Speculative Frenzy*, 16 EUR. PHYS. J. 729 (2000).

See Eric Risley, Steve Payne, & John Ascher-Roberts, *Most ICOs Fail: A Tale of Two Worlds*, ARCHITECT PARTNERS (Sept. 26, 2017), <https://perma.cc/3BUN-3JDC> (arguing that of a database comprising over 100 ICOs at least 46 ICOs met their funding objective and raised \$1.6 billion, or \$36 million each, since June 2017, while 51 ICOs did not reach their funding goals). For instance, in what was then the world's largest-to-date ICO, Tezos, collected twenty times the \$10 million the founders had initially envisioned nine months prior to the ICO. See Marc Hochstein, *Tezos Founders on ICO Controversy: "This Will Blow Over,"* COINDESK (Oct. 25, 2017), <https://perma.cc/3EGR-YY7E>. Note that Eric Risley's assertion reported herein is not confirmed by our dataset; we lack,

however, a sufficient amount of detailed data on subscriptions to make an informed guess. *See infra* Section II.D. Further, ICO caps seem to move from time to time, rendering a clear statement on subscriptions difficult.

72 *See* Kharif, *supra* note 1 (citing data gathered by Token Report analyzing the use of 226 coin sales).

73 In Switzerland, an assignment of contractual rights is required to be in writing or with a qualified electronic signature: OBLIGATIONENRECHT [OR] [CODE OF OBLIGATIONS]] Mar. 30, 1911, art. 164 (Switz.). For an English translation, see *id.*, <https://perma.cc/YDH3-FMS4zzaza>.

74 For the classic treatments, see CHARLES P. KINDLEBURGER, MANIAS, PANICS AND CRASHES: A HISTORY OF FINANCIAL CRISES (1996); Hyman Minsky, *The Financial Instability Hypothesis* (Levy Econ. Inst., Working Paper No. 74) (1992); C.M. REINHART & K.S. ROGOFF, THIS TIME IS DIFFERENT: EIGHT CENTURIES OF FINANCIAL FOLLY (2011).

75 *See* Press Release, SEC, SEC Exposes Two Initial Coin Offerings Purportedly Backed by Real Estate and Diamonds, *supra* note 8. The Press Release noted:

[T]oday [the SEC] charged a businessman and two companies with defrauding investors in a pair of so-called initial coin offerings (ICOs) purportedly backed by investments in real estate and diamonds. The SEC alleges that [an individual] and his companies have been selling unregistered securities Alleged misstatements to REcoin investors included that the company had a 'team of lawyers, professionals, brokers, and accountants' that would invest REcoin's ICO proceeds into real estate when in fact none had been hired or even consulted. Zaslavskiy and REcoin allegedly misrepresented they had raised between \$2 million and \$4 million from investors when the actual amount is approximately \$300,000.

Id.

76 Jemima Kelly, *Cryptocurrencies' Market Cap Hits Record \$200 Billion as Bitcoin Soars*, REUTERS (Nov. 3, 2017), <https://perma.cc/4FNN-9D5L>.

77 *Compiled from Stats and Facts*, ICOBENCH, <https://perma.cc/LBK3-VZL3> (last visited Mar. 26, 2019); *Reports*, ICORATING, <https://perma.cc/7QAZ-ULUZ> (last visited Mar. 26, 2019); *ICO Insights*, TRACKICO, <https://perma.cc/NGG3-TU6V> (last visited Mar.26 2019).

78 Many ICOs demand subscriptions to be paid in ETH, and in a handful of cases in BTC. When ETH or BTC fluctuate in value, so does the volume. For methodological reasons we have taken the currency market value at the first day of offering since this is the date at which the issuer is able to determine the volume necessary for the issuer's project. Further, since in most months of the Whitepaper Database ETH and BTC had risen, the number we give here is most likely too low.

79 Since we could not confirm the size of ICO RedCab independently, we have excluded the numbers of RedCab from our sample.

80 The ICObench Database on capital raised is more informative on these questions than our other two webscraped databases. The TrackICO Database provides a mere 1223 observations and some of them are inconclusive (for instance, negative numbers); the average capital raised on TrackICO is \$15.1 million per ICO. The ICORating Database provides 1300 observations, amounting to \$22.1 billion collected, an average of \$17 million.

81 *See supra* note 78.

82 The concept of a progression from "too-small-to-care" to "too-big-to-fail" was initially developed by Douglas W. Arner & János Barberis, *Regulating FinTech Innovation: A Balancing Act Seminar*, ASIAN INST. INT'L FIN. L. (Apr. 1, 2015), <https://perma.cc/WL9F-6QKH>; and was further developed in Douglas W. Arner, János Barberis & Ross P. Buckley, *The Evolution of FinTech: A New Post-Crisis Paradigm?*, 47 GEO. J. INT'L L. 1271 (2016).

83 Eric Lam, Mathieu Benhamou, & Adrian Leung, *How Bitcoin's Crash Compares to History's Biggest Bubbles: Chart*, BLOOMBERG (Nov. 21, 2018), <https://perma.cc/U5YF-SS9M>.

84 *A Remarkable History*, VANGUARD, <https://perma.cc/RC6E-V3W3> (last visited Mar. 26, 2019).

85 *About Fidelity*, FIDELITY, <https://perma.cc/U898-FWJM> (last visited Mar. 26, 2019).

86 *Company History*, SCHWAB, <https://perma.cc/B4W2-MYFS> (last visited Mar. 26, 2019).

- 87 *Our History*, ANT FINANCIAL, <https://perma.cc/9CKU-B8JF> (last visited Mar. 26, 2019).
- 88 Bill Powell, *Alibaba: The \$200 Billion 'Open Sesame'*, NEWSWEEK (Sept. 8, 2014), <https://perma.cc/C8QQ-2DBP>.
- 89 See Tjun Tang, Yue Zhang & David He, *The Rise of Digital Finance in China--New Drivers, New Game, New Strategy*, BOSTON CONSULTING GROUP 4 (2014), <https://perma.cc/K8VG-89FB>; Shaohui Tian, *Alibaba's Yu'e Bao Becomes Largest Money Market Fund Globally*, XINHUA NET (Apr. 28, 2017), <https://perma.cc/YZ5V-PH6D>.
- 90 See Zetsche, Buckley, & Arner, *Distributed Liability*, *supra* note 63, at 1391-1402.
- 91 *Id.*
- 92 Federal Trade Commission Act, 15 U.S.C. § 45(a)(1) (2006).
- 93 *Id.* § 45(a)(4)(A).
- 94 *Id.* § 45(b).
- 95 For the leading case, see German Supreme Court (BGH), 24 Apr. 1978 - II ZR 172/76, BGHZ 71, 284; for details, see Volker Emmerich, in MÜNCHENER KOMMENTAR ZUM BÜRGERLICHEN GESETZBUCH ¶ 135 *et seq.* (7th ed., 2016).
- 96 See Barsan, *supra* note 7, at 61.
- 97 *See id.*
- 98 *Initial Coin Offerings*, AUSTRALIAN SECURITIES AND INVESTMENTS COMMISSION (Sept. 28, 2017), <https://perma.cc/26M2-7CM9>.
- 99 *Competition and Consumer Act 2010* (Cth) ss 18, 20, 21, 22.
- 100 Denham Sadler, *ASIC Set to Move on ICOs*, INNOVATIONAUS (Sept. 8, 2017), <https://perma.cc/L4UH-VUZC>.
- 101 The European consumer protection framework rests on the European Directive on Consumer Rights (Directive 2011/83/. Of the European Parliament and of the Council of 25 October 2011 on consumer rights, amending Council Directive 93/13/EEC and Directive 1999/44/EC of the European Parliament and of the Council and repealing Council Directive 85/577/EEC and Directive 97/7/EC of the European Parliament and of the Council, 2011 O.J. (L 304) 64) and is supplemented by specific conductor product-related legislation. The European consumer protection framework assumes the perspective that the asymmetry of information, where the commercial actor knows more about the product or service than the consumer, is open to abuse, and seeks to add a notion of fairness and good faith into the contracting between commercial actors and consumers. This is particularly true for technical products and services. Under that framework, depending on the details, ICOs could qualify as contracts for services or goods. If the contract is qualified as financial services, specific financial service legislation applies. *See infra* note 104.
- 102 Consumer Rights Act 2015, c.15, the Consumer Protection Act 1987, c.43, and the Misrepresentation Act 1967, c.7.
- 103 In Australia, see *ACCC v. Valve Corporation* [2016] FCA 196; and Sharon Christensen, *Comparative Analysis of Overseas Consumer Policy Frameworks: Part 4*, CONSUMER LAW, <https://perma.cc/HM8B-K53Y>. For the EU, the Rome I Regulation (Regulation (EC) No. 593/2008 of the European Parliament and of the Council of 17 June 2008 on the law applicable to contractual obligations, 2008 O.J. (L.177) 6) harmonizes private international law all over the EU. On consumer rights, see Art. 6(1), (2) and Recital 25 of Rome I ("Consumers should be protected by such rules of the country of their habitual residence that cannot be derogated from by agreement, provided that the consumer contract has been concluded as a result of the professional pursuing his commercial or professional activities in that particular country. The same protection should be guaranteed if the professional, while not pursuing his commercial or professional activities in the country where the consumer has his habitual residence, directs his activities by any means to that country or to several countries, including that country, and the contract is concluded as a result of such activities."); for instance, in the U.K., pursuant to § 31 and § 47 of the *Consumer Rights Act of 2015*, the Act applies to all contracts for the supply of goods or services including digital content to a U.K. consumer and these provisions cannot be contracted out of. For an analysis of the private international law dimension of ICOs, see Barsan, *supra* note 7.

- 104 See Art. 3(3) lit. d and Recital 9 of the European Directive on Consumer Rights (Council Directive 2011/83, 2011 O.J. (L 304) 64) (“The regulatory aspects to be harmonized should only concern contracts concluded between traders and consumers. Therefore, this Directive should not affect national law in the area of contracts relating to employment, contracts relating to succession rights, contracts relating to family law and contracts relating to the incorporation and organization of companies or partnership agreements.”)
- 105 See Zetzsche, Buckley, & Arner, *Distributed Liability*, *supra* note 63.
- 106 In addition to the laws discussed herein, in most countries AML and CTF rules, and possibly emoney and money transmitter regulations, are likely to apply.
- 107 See *supra* Section I.B.
- 108 In 2014, the U.S. Commodity Futures Trading Commission (“CFTC”) declared virtual currencies to be a “commodity” subject to oversight under its authority under the Commodity Exchange Act (“CEA”). See Testimony of CFTC Chairman Timothy Massad before the U.S. Senate Committee on Agriculture, Nutrition and Forestry (Dec. 10, 2014), <https://perma.cc/S2TS-Q5WU>. Based on this clarification, the CFTC has taken various enforcement actions, for instance against unregistered Bitcoin futures exchanges (BitFinex), see BXFNA Inc. d/b/a Bitfinex, Docket. No. 16-19 (CFTC Jun. 2, 2016), <https://perma.cc/4ACC-DV9K>, and a virtual currency Ponzi scheme. On September 21, 2017, the CFTC filed a complaint in federal court in the Southern District of New York against Nicholas Gelfman and Gelfman Blueprint, Inc. See Complaint, CFTC v. Gelfman Blueprint, No. 1707181 (S.D.N.Y. Sept. 21, 2017), <https://perma.cc/83T9-ANWZ>. For details, see CFTC Backgrounder on Oversight of and Approach to Virtual Currency Futures Markets, CFTC, (Jan. 4, 2018), <https://perma.cc/NH44-P3CB>.
- 109 Japan has recognized Bitcoin as an official means of payment, see <https://perma.cc/C5SM-L73L>. In turn, legislation on payment providers applies. In its position of 14 March 2014, Luxembourg's CSSF has announced that it deems the issue of virtual currencies (i.e. tokens with currency characteristics) outside the scope of financial regulation; however, as soon as business exchanges virtual currencies (i.e. tokens with currency characteristics) against fiat currency, the exchange is subject to regulation as a payment service provider under the EU Payments Services Directive or the Electronic Money Institution Directive, see Jean-Louis Schiltz & Nadia Manzari, *Luxembourg*, 1 THE VIRTUAL CURRENCY REGULATION REVIEW (Nov. 2018), <https://perma.cc/3MA6-YHM2> (in the meanwhile, the so-called Bitcoin Communique of 14 March 2014 has been removed from the CSSF's website and replaced by the CSSF warning notice of 14 March 2018, in response to closer supervisory coordination within the EU).
- 110 On the requirements see *supra* Section I.B.
- 111 Notable examples include Taas (Token-as-a-service) selling membership tokens in a closed-end crypto-asset fund where the token will entitle holders to 50% of the fund's profits, and payouts rely on a profit-sharing Ethereum smart contract. Another example includes Overstock/tZERO, where the ICO “will raise the money through a private placement for accredited investors, and the token will trade on the company's own platform. Most notably, it will pay holders a percentage of tZERO's eventual profits, distributed quarterly. In other words, a regular old stock dividend.” See Matt Levine, *This ICO Looks an Awful Lot Like a Share Offering*, BLOOMBERG (Oct. 27, 2017), <https://perma.cc/77UJ-GWU9>.
- 112 See *supra* note 24.
- 113 See *SEC v. Howey Co.*, 328 U.S. 293, 301 (1946). According to *Howey*, what matters for the qualification of an investment contract, which is a precondition for a security under the U.S. securities regulation, is whether “the scheme involves an investment of money in a common enterprise with profits to come solely from the efforts of others.” Thus a token is an investment contract if token holders invest and expect to make a profit from the entrepreneurial and managerial efforts of others. This condition is met where token holders are granted participation in a future cash flow of a project or company. Note that participation rights are not a condition of the *Howey* test.
- 114 See SEC, *Joint Staff Statement on Broker-Dealer Custody of Digital Asset Securities* (July 8, 2019), <https://perma.cc/Z5WK-FX3F>.
- 115 *Munchee Token (MUN)*, COINSCHEDULE, <https://perma.cc/T6YF-A2GX> (last visited Dec. 21, 2017).
- 116 See Matt Levine, *SEC Halts a Real Initial Coin Offering*, BLOOMBERG (Dec. 13, 2017), <https://perma.cc/355V-J4TV>.
- 117 *Munchee Inc.*, Securities Act of 1933 Release No. 10445, *supra* note 8, at 10.

- 118 Sanjeev Verma, Nghi Bui, & Chelsea Lam, *Munchee Token: A Decentralized Blockchain Based Food Review/Rating Social Media Platform*, <https://perma.cc/MG5K-6T6T>.
- 119 Munchee Inc., Securities Act of 1933 Release No. 10445, *supra* note 8 at 6 (order instituting cease-and-desist proceedings).
- 120 *Id.*, at 8.
- 121 For instance, while not specifying details, the Singapore MAS has clarified in its August 1, 2017 statement that securities regulation could apply to ICOs. *See* Media Release, MAS, *supra* note 14. The same holds true for the British FCA. *See* Media Release, Financial Conduct Authority, *supra* note 12.
- 122 From the French perspective, see Barsan, *supra* note 7, at 63 (arguing that equity tokens are “other securities equivalent to shares in companies, partnerships or other entities” under the MiFID framework). This view is shared by the authors.
- 123 *See* the definition of “investment adviser” of the Investment Advisers Act § 202(a)(11), 15 U.S.C. § 80b-2 (1940).
- 124 *See* European Securities & Markets Authority, *Advice on Initial Coin Offerings and Crypto-Assets 21-27*, (Jan. 9 2019), <https://perma.cc/9WNB-4E7S> (arguing that certain financial legislation is likely to apply, but each case must be analyzed separately).
- 125 *See Virtuelle Währungen/Virtual Currency (VC)*, BAFIN, <https://perma.cc/TKU7-WU9D>, at “Erlaubnispflichten” (subjecting all virtual currency trades to legislation applicable to financial instruments; the same principles apply to tokens in general).
- 126 *See* Faktenblatt “Initial Coin Offering,” FMA (Sept. 10, 2017), <https://perma.cc/5V4C-JQGC>.
- 127 Investment Company Act § 3, 15 U.S.C. §§ 80a-3 (1940).
- 128 *See* Howey, *supra* note 113, at 301.
- 129 Directive 2011/61/EU of the European Parliament and of the Council of 8 June 2011 on Alternative Investment Fund Managers and amending Directives 2003/41/EC and 2009/65/EC and Regulations (EC) No. 1060/2009 and (EU) No. 1095/2010, art. 4(1)(a) (i), 2011 O.J. (L 174). For details, see D. Zetsche & C. Preiner, *Scope of the AIFMD*, in *THE ALTERNATIVE INVESTMENT FUND MANAGERS DIRECTIVE 49 et seq.* (D. Zetsche ed. 2d ed., 2015) (International Banking And Finance Law Series, vol. 20). For a criticism on the broad scope, see P. Athanassiou & T. Bullman, *The EU's AIFM Directive and Its Impact: An Overview*, in *RESEARCH HANDBOOK ON HEDGE FUNDS, PRIVATE EQUITY AND ALTERNATIVE INVESTMENTS 442* (P. Athanassiou ed., 2012) and D. Busch & L. van Setten, *The Alternative Investment Fund Managers Directive*, in *ALTERNATIVE INVESTMENT FUNDS IN EUROPE; LAW AND PRACTICE 1* (L. van Setten & D. Busch eds., 2014).
- 130 *See Initial Coin Offerings and Crypto-Currency*, ASIC (May 2018), <https://perma.cc/BXD5-PHR5>.
- 131 *See* Timothy Massad, CFTC Chairman, Testimony before the U.S. Senate Committee on Agriculture, Nutrition and Forestry (Dec. 10, 2014), <https://perma.cc/9E2D-L64B>.
- 132 *See* BXFNA, *supra* note 108.
- 133 *See* Complaint for Injunctive and Other Equitable Relief and for Civil Monetary Penalties Under the Commodity Exchange Act and Commission Regulations, Commodity Futures Trading Comm'n v. Gelfman Blueprint, Inc., No. 17-7181 (S.D.N.Y. Sept. 21, 2017), <https://perma.cc/9E2D-L64B> (On September 21, 2017, the CFTC filed a complaint in federal district court in the Southern District of New York against Nicholas Gelfman and Gelfman Blueprint, Inc.).
- 134 *See* Australia Corporations Act 2001, § 761D.
- 135 *See Regulation of Virtual Assets*, FATF, (Oct. 19, 2018), <https://perma.cc/XX4S-SJ6W>. *See also*, FINMA Guidance 04/2017, *supra* note 17; Media Release, European Securities and Markets Authority, ESMA Alerts Firms Involved in Initial Coin Offerings to the Need to Meet Relevant Regulatory Requirements (Nov. 13, 2017), <https://perma.cc/SR8M-LCY7>; Media Release, MAS, *supra* note 14.
- 136 For an overview of suggested types of regulation in the EU, see Dirk Zetsche & Christina Preiner, *Cross-Border Crowdfunding: Towards a Single Crowdfunding Market for Europe*, 19 EUR. BUS. ORG. L. REV. 217 (2018), <https://perma.cc/2T34-2QTB>.

- 137 See *Regulation Crowdfunding: A Small Entity Compliance Guide for Issuers*, SEC (May 13, 2016), <https://perma.cc/UH9E-TGQ3> (“Title III of the Jumpstart Our Business Startups (JOBS) Act of 2012 added Securities Act Section 4(a)(6) that provides an exemption from registration for certain crowdfunding transactions. In 2015, the Commission adopted Regulation Crowdfunding [17 CFR Parts 200, 227, 232, 239, 240, 249, 269, and 274] to implement the requirements of Title III.2”). On regulation, see Sharon Yamen & Yoel Goldfeder, *Equity Crowdfunding--A Wolf in Sheep's Clothing: The Implication of Crowdfunding Legislation under the JOBS Act*, 11 INT'L L. & MGMT. REV. 41, 57 (2015).
- 138 *Multilateral CSA Notice 45-316 Start-up Crowdfunding Registration and Prospectus Exemptions*, FINANCIAL AND CONSUMER AFFAIRS AUTHORITY (May 14, 2015), <https://perma.cc/WA3K-H2LQ>.
- 139 See § 3 Bundesgesetz über alternative Finanzierungsformen (Alternativfinanzierungsgesetz - AltFG); Roman Rericha & Raphael Toman, *Neuer Rechtsrahmen für Crowdfunding - Ausbruch aus dem RegelungsDickicht des Kapitalmarkts?*, Z.F.R. 218, 403 (2015).
- 140 See § 2a Gesetz über Vermögensanlagen (Vermögensanlagengesetz - VermAnlG); Lars Klöhn, Lars Hornuf & Tobias Schilling, *The Regulation of Crowdfunding in the German Small Investor Protection Act: Content, Consequences, Critique, Suggestions*, 13 EUR. COMP. L. 57 (2016).
- 141 Approximately 30% of the ICOs in our Whitepaper Database where data is disclosed impose minimum investment amounts; these amounts are usually set at very low amounts, e.g. 0.1 ETH.
- 142 See generally Rüdiger Fahlenbrach & Marc Frattaroli, *ICO investors: Finance Working Paper No. 618/2019*, ECGI (July 2019), <https://perma.cc/62DV-FEKQ>.
- 143 *Crowd-Sourced Funding*, ASIC (Dec. 22, 2018), <https://perma.cc/4FY3-QNDW>.
- 144 *Initial Coin Offerings (ICOs)*, MONEYSMART (Dec. 12, 2018), <https://perma.cc/43WU-Z3GB>.
- 145 See ASIC, *supra* note 130.
- 146 On the SAFT framework in the United States, see Juan Batiz-Benet, Jesse Clayburgh & Marco Santori, *The SAFT Project: Toward a Compliant Token Sale Framework*, COOLEY (Oct. 2, 2017), <https://perma.cc/5Q4N-9W8Z>. On the Conceptual Framework for Blockchain Crypto Property (“BCP”) from MME in Switzerland, see *The New Property on the Block*, MME (May 2018), <https://perma.cc/WS8B-3FK2>.
- 147 See Press Release, SEC, Investor Alert: Public Companies Making ICO-Related Claims, (Aug. 28, 2017), <https://perma.cc/LK72-5GQC>.
- 148 See *supra* notes 10 and 11 and accompanying text.
- 149 Saheli Roy Choudhury, *China Bans Companies from Raising Money through ICOs, Asks Local Regulators to Inspect 60 Major Platforms*, CNBC (Sept. 4, 2017), <https://perma.cc/4TZR-4LPY>.
- 150 David Meyer, *China's Central Bank Is Banning Initial Coin Offerings*, FORTUNE (Sept. 4, 2017), <https://perma.cc/86F7-TVT8>.
- 151 Wolfie Zhao, *China's ICO Ban: A Full Translation of Regulator Remarks*, COINDESK (Sept. 5, 2017), <https://perma.cc/U3BR-63VT>.
- 152 *Id.*
- 153 Chen & Lee, *supra* note 10.
- 154 E.g., Zhao, *supra* note 151; Choudhury, *supra* note 149.
- 155 Zhao, *supra* note 151.
- 156 Gabriel Wildau, *Bitcoin Proves Hard to Kill in China*, FINANCIAL TIMES (Nov. 8, 2017), <https://perma.cc/F254-VCNN>. (stating that “more of the buying and selling of cryptocurrencies has gravitated towards the private over-the-counter market”).
- 157 Simon Sharwood, *South Korea Bans Initial Coin Offerings*, REGISTER (Sept. 29, 2017), <https://perma.cc/7589-BYEE>.

- 158 Jonathan Ponciano, *South Korea Issues Ban on ICOs as Trading Volume Climbs at Nation's Exchanges*, FORBES (Sept. 29, 2017), <https://perma.cc/9ZRD-FQ9T>.
- 159 Nakamura, *supra* note 11.
- 160 Cynthia Kim, *South Korea Bans Raising Money through Initial Coin Offerings*, REUTERS (Sept. 29, 2017), <https://perma.cc/6CCH-WPXD>.
- 161 Douglas Arner, *Development of the American Law of Corporations to 1832*, 55 S.M.U. L. REV. 23, 23-57 (2002).
- 162 Douglas Arner, *Adaptation and Resilience in Global Financial Regulation*, 89 N. C. L. REV. 1579, 1579-626 (2011).
- 163 Batiz-Benet, *supra* note 146.
- 164 *The SAFT Project*, SAFT PROJECT, <https://perma.cc/V4Y4-KLGM> (last visited Dec. 21, 2017).
- 165 Pete Rizzo, *SAFT Arrives: 'Simple' Investor Agreement Aims to Remove ICO Complexities*, COINDESK (Oct. 2, 2017), <https://perma.cc/RQA3-NYCF>.
- 166 *See Regulators' Statements on Initial Coin Offerings*, INTERNATIONAL ORGANIZATION OF SECURITIES COMMISSIONS, <https://perma.cc/GLZ4-TK9A>.
- 167 *See* Press Release, SEC, Investor Bulletin, *supra* note 14.
- 168 *See* Press Release, Monetary Authority of Singapore, Consumer Advisory on Investment Schemes Involving Digital Tokens (Including Virtual Currencies) (Aug. 10, 2017), <https://perma.cc/2BHV-7PPD>.
- 169 *See* Press Release, Hong Kong Securities and Futures Commission, Statement on Initial Coin Offerings (Sep. 5, 2017), <https://perma.cc/GK82-88YQ>.
- 170 *See* Press Release, Financial Conduct Authority, *supra* note 12.
- 171 *See* Press Release, ASIC, *Initial coin offerings and crypto-currency* (Sept. 28, 2017), <https://perma.cc/9SDM-5WCD>.
- 172 *See* Press Release, BaFin Federal Financial Supervisory Authority, *supra* note 12.
- 173 *See* Press Release, BaFin Federal Financial Supervisory Authority, Initial Coin Offerings: High Risks for Consumers (Nov. 15, 2017), <https://perma.cc/X5LJ-XMLV>.
- 174 *See* Press Release, European Securities and Markets Authority ("ESMA"), ESMA Alerts Firms Involved in Initial Coin Offerings to the Need to Meet Relevant Regulatory Requirements (Nov. 13, 2017), <https://perma.cc/WA8W-3R85>; Press Release, ESMA, ESMA Alerts Investors to the High Risks of Initial Coin Offerings (Nov. 13, 2017), <https://perma.cc/NQ59-5ELC>.
- 175 *See supra* note 147.
- 176 *Id.*
- 177 *Id.*
- 178 *See* BaFin Federal Financial Supervisory Authority, *supra* note 12.
- 179 *Id.*
- 180 *See* Press Release, Financial Conduct Authority, *supra* note 12.
- 181 *See supra* note 174.
- 182 *Id. supra* note 169.
- 183 *See supra* note 12.

- 184 See *supra* note 174.
- 185 Risley, Payne, & Ascher-Roberts, *Most ICOs Fail*, *supra* note 71.
- 186 See *supra* Section II.D.
- 187 On 13 September 2013, the European Banking Authority issued a warning to consumers on “Virtual Currencies” such as Bitcoin. See *Warning to Consumers on Virtual Currencies*, EUROPEAN BANKING AUTHORITY (Dec. 12, 2013), <https://perma.cc/SR64-VEFP>.
- 188 See *Munchee Inc.*, Securities Act of 1933 Release No. 10445, *supra* note 8.
- 189 See Press Release, SEC, SEC Emergency Action Halts ICO Scam, *supra* note 8.
- 190 See *supra* note 20; see also *supra* Figure 7.
- 191 Davis Polk Client Memorandum, *SEC Debuts Roadmap for Resolving Illegal ICOs* (Nov. 20, 2018), <https://perma.cc/ZF8Y-QYMC>.
- 192 See *Russian Finance Ministry Proposes Draft Law on ICO Regulation*, COINDESK (Jan. 26, 2018) <https://perma.cc/6M6E-GYHB>.
- 193 See *Russian Cryptocurrency and ICO Regulation Starts Taking Shape*, LINIYA PRAVA (Jan. 30, 2018) <https://perma.cc/JDP2-MYJG>.
As LP notes:
The draft law requires token issuers [*sic*] to disclose certain information prior to the offering in the forms of public offer and investment memorandum. These documents should include among other: information on token issuer and its beneficiaries (name, place of business, corporate structure, website, etc.); the token owners' rights and the procedure of their exercising; the price of the issued tokens or the procedure of its determination; information on formation and access to digital wallets used for the storage of data on purchased tokens; the main purposes of token issue and spending of funds raised at the ICO; the rules of maintenance of digital transactions registry.
Id.
- 194 See *supra* Section IV.D.
- 195 The over \$1.2 billion raised through ICOs in the first half of 2017 by far outstripped venture capital investment into Blockchain and Bitcoin firms. See *Autonomous Next*, *supra* note 3, at 6. Of course, the volume varies from country to country, ranging from 0.45% of start-up funding in the United States to 3.83% in Europe. See *Funderbeam*, *supra* note 58, at 7.

60 HVILJ 267

End of Document

© 2020 Thomson Reuters. No claim to original U.S. Government Works.